Power Mac shoot-out: 733MHz vs 533MHz DP

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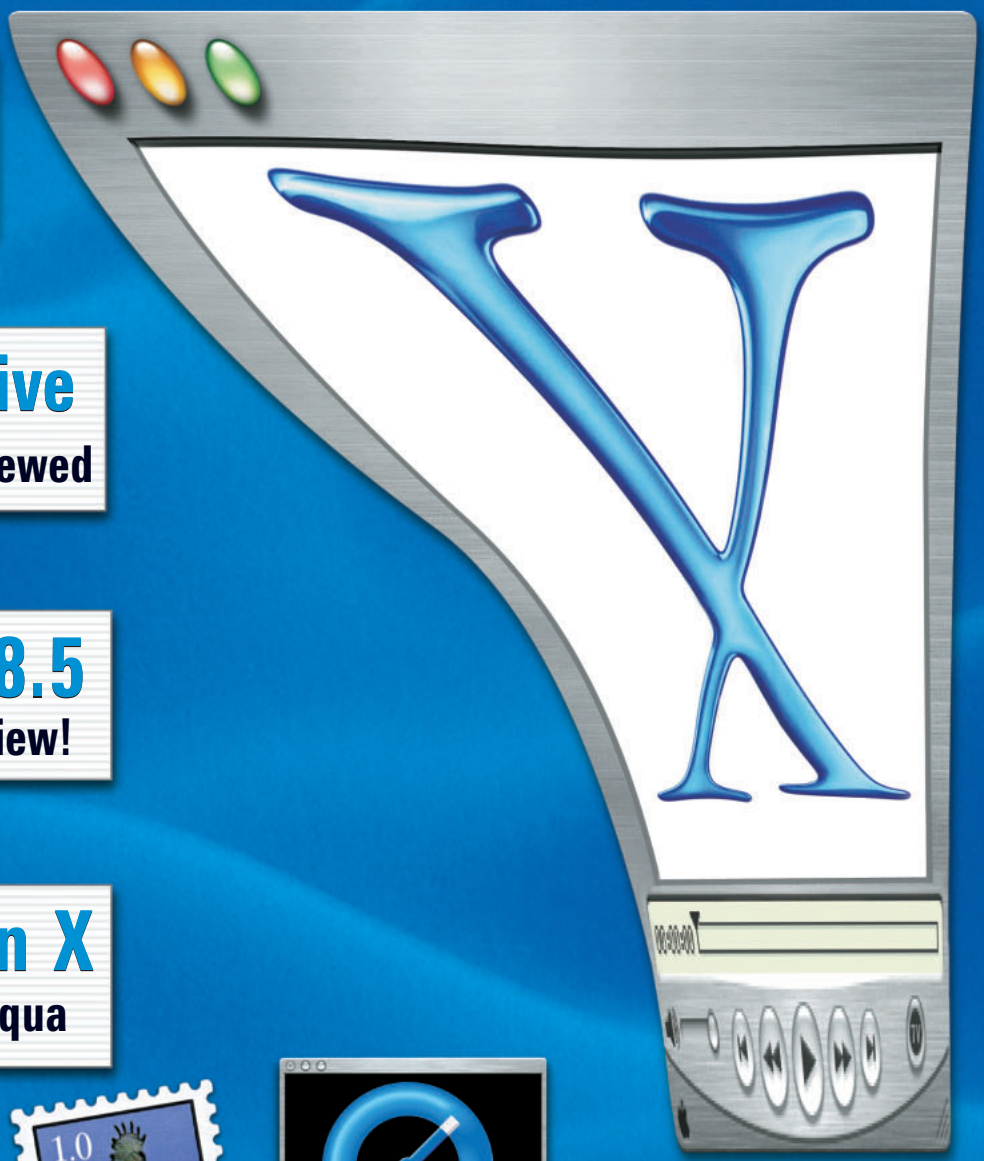
Mac OS X Revealed

Inkjet special
24 tested + expert tips

Apple's SuperDrive
and DVD Studio Pro reviewed

Director 8.5
Exclusive preview!

FreeHand 10 on X
Illustrator attacked in Aqua



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IDG MAY 2001 £4.99

Simon Jary
editor-in-chief

Macworld reveals the hidden secrets of Apple's next-generation operating system.

Tale of the unXpected

"Mac OS X's pulsing Aqua buttons can be customized to match – and even affect – your heartbeat, via System Preferences"

At last! Mac OS X is here. OK, so it's not quite the finished article yet (it won't burn CDs, for instance, despite this being Apple's current hobby-horse), but all these missing features should be cleared up in a matter of weeks – certainly by July's Macworld Expo in New York.

OS X is a total rebuild of the Macintosh operating system. Out goes the legion of old code that maintained ancient functions: floppy-disk drives, multicoloured Apple logos, and the Jigsaw Puzzle, for example. In their place, Mac OS X adds stuff so modern that you need a second-language in technospeak just to get your head round it all: multithreading, pre-emptive multitasking, POSIX file system semantics and NFS file sharing, etc.

While Apple has shouted about these arcane advances, it has kept quiet on some of OS X's other multo-modern features. After a week working with X, we discovered a bunch of unannounced functions hidden underneath the Aqua user interface (UI).

Under OS X, repeatedly rapping your mouse on the desk will actually speed up actions such as loading Web pages or opening File Sharing. This functionality, however, is available only to users of Apple's optical Pro Mouse. Apple has promised downloadable updates that will lend this feature to older Apple mice and third-party input devices in the third-quarter of 2001.

Similarly, as well as benefiting from the operating system's sophisticated Protected Memory, OS X users will now be able to rescue crashed apps by banging the side of their monitor. At the present time, this feature is available only to owners of new Apple displays that connect via the digital Apple Display Connector (ADC) port. Left-handed Mac users have complained that this function works only on the right-hand side of displays. Apple has promised that it will offer "full left-side compatibility" within 90 days.

The Sleep function in OS X is also blessed with sophisticated auto-intelligence features. A sleeping X Mac will wake up in the middle of the night with the answer to that puzzling Excel spreadsheet problem, or provide the creative jolt that gets a tricky illustration started. After emailing the information to its master, the X Mac will fall into a blissfully calm sleep that will ensure 10-15 per cent faster performance for 2-3 days.

The pulsing-Aqua buttons can be customized to match – and even affect – your heartbeat. If you're feeling tense and under pressure, you can slow-down the pulsing to calm your nerves via a quick visit to System Preferences. If you're feeling woozy on a Monday afternoon, speed up the pulsing for a much-needed pep-up.

When opening files or apps from the Dock, you can set the icons to bounce while opening. Apple's new flat-panel Studio Displays include a near-invisible Trampoline Strip that increases bounce, thus opening files faster than third-party monitors. Apple is reported to be working on minimizing the Strip for PowerBooks.

It's documented that when an application needs memory, X's Virtual Memory Manager automatically allocates precisely the amount needed. It's less well known that OS X also features a Virtual Mess Manager, which allocates precisely the amount of icons needed to cover your clean X screen to make it impossible to see freshly loaded CDs and networked hard disks – thus ensuring a regular dose of retro-OS reminiscence.

Other X secrets: OS X's Quartz 2D graphics system ensures that the new-look Clock stays accurate to 1 second every million years; X Sherlock, now featuring a Dr Watson helper, has been 'Cocaine-ized' for faster search speed; and, the Network globe icon will turn on its axis to show the user's own country rather than the US-centric worldview on show in the Public Beta (this feature was unavailable at press time).

The open-source Darwin core of OS X actually evolves while the Mac is turned on. While this will save hours of downloading multi-megabyte updates throughout the lifetime of the product, the downside is that progressive Mac variations will make bugs and incompatibilities almost impossible for software and peripheral developers to keep up with. The innovative evolutionary nature of Darwin, and OS X in general, apparently marks what Apple CEO Steve Jobs is calling "the end game of Think Different".

Inevitably, alongside all these hidden features are a bunch of X bugs. Beta-user feedback warns that the UI starts to lose its electric-blue glow as X's Aqua batteries fade. Several users have also reported frightening cases of Aqua-blindness, after prolonged exposure to the luminescent X colour. Apple recommends that you occasionally switch to the more-sober Graphite look to avoid this nervous pulsing blue-eye condition.

Further into the distance, company sources have revealed that Apple is already working on Mac OS Y (pronounced 'eleven'). OS Y is a totally re-engineered operating system (based on an as-yet un-invented version of Linux) that will include all sorts of whizzy advances (with tech names so complicated that they're written entirely in mathematical symbols), and a new UI called 'Fandango'. Quartz will be replaced by Crystal, with 3D graphics via WideOpenGL. According to our sources, the Y project will take 10-12 years, ruin at least four Apple CEOs, and occasionally plunge the company share price to within a whisker of an aggressive take-over by Disney, Sony, or even Lastminute.com.

Don't forget, you read it here first.... MW

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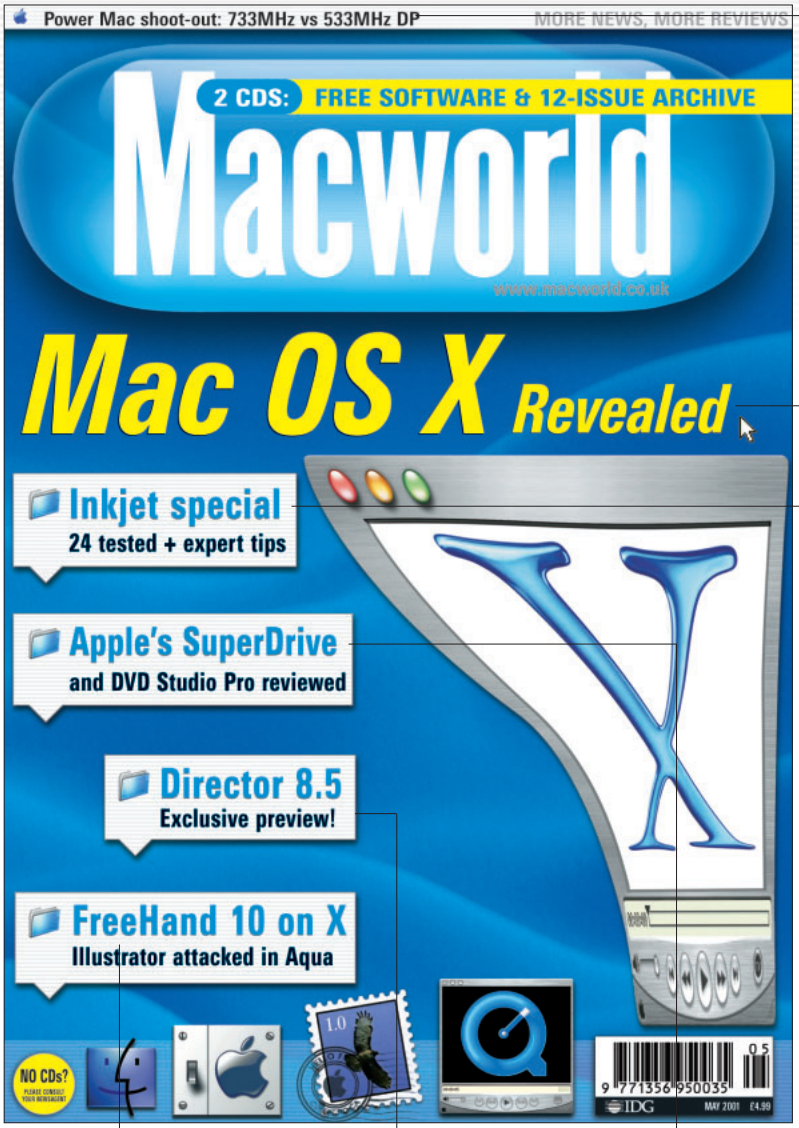

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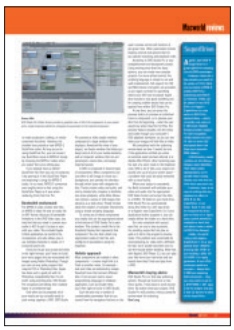

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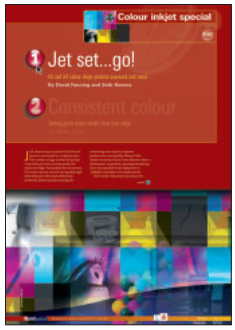

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CONTACT

Editor-in-Chief	Simon Jary *editor@macworld.co.uk*
Deputy Editor	David Fanning *davidf@macworld.co.uk*
News Editor	Jonathan Evans *news@macworld.co.uk*
News Reporter	Dominique Fidéle *dominiquef@macworld.co.uk*
Managing Editor	Sean Ashcroft *sean_ashcroft@macworld.co.uk*
Chief Sub-Editor	Woody Phillips *woody@macworld.co.uk*
Art Editor	James Walker *james_walker@macworld.co.uk*
Art Director	Mandie Johnson *mandie_johnson@macworld.co.uk*
Managing Editor/Online	Gillian Thompson *gillian_thompson@macworld.co.uk*
Assistant Online Editor	Vittoria Momento *vittoria_momento@macworld.co.uk*
CD Editor	Vic Lennard
US Editor	Andrew Gore
Contributing editors	David Pogue, Deke McClelland, Franklin Tessler, Bruce Fraser, Christopher Breen, Matthew Bath, Peter Cohen, Adam C Engst, Jim Heid.
Group Advertising Manager	Mustafa Mustafa *mustafa@macworld.co.uk*
Deputy Advertising Manager	Dean Payn *dean_payn@macworld.co.uk*
Display Sales Executive	James Poulson *jamesp@macworld.co.uk*
Classified Sales Executive	Alex Cheesman *alex_cheesman@macworld.co.uk*
Classified Sales Executive	Clive Page *clive_page@macworld.co.uk*
Production Manager	Sharon Bird *sharonb@idglondon.co.uk*
Deputy Production Manager	Richard Bailey *richardb@macworld.co.uk*
Production Assistant (Ads)	Nikki Basten *nikki_basten@idglondon.co.uk*
Marketing Manager	Jo Brown *jo_brown@macworld.co.uk*
Circulation Manager	Jim Birch *jim_birch@macworld.co.uk*
Marketing Co-ordinator	Kelly Crowley *kelly_crowley@macworld.co.uk*
Marketing Assistant	Sam French *samf@macworld.co.uk*
Publisher	Guy Eaton *guy_eaton@macworld.co.uk*

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IDG

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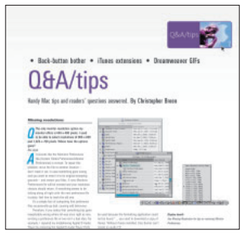


EVERY MONTH

REVIEWS

cc: Macworld letters

Your Star Letter wins a copy of Office: 2001, worth £480

We reward the best reader letter with a copy of Microsoft's Office: 2001 for Mac. This integrated package of business applications includes enhanced versions of the market-leading Word, Excel and PowerPoint programs, as well as the new Entourage – a personal-information manager and email client.
Write to: Letters, Macworld, 99 Gray's Inn Road, London WC1X 8UT.
Or email letters@macworld.co.uk. *Please provide full name and contact details.*

Subject: OS X whimper
I went to a Mac OS X launch "party" at Solutions Inc, an accredited Apple Centre in Hove. Outside, there were no banners or boards announcing the OS X launch. Inside, the only sign that a seismic Apple event was taking place was the staff's OS X T-shirts. To cap it all, of the three Macs on display, only one had OS X installed.

Resellers in England have got a long way to go with their marketing skills. Surely Apple UK could have at least provided a few T-shirts to hand out.
Paul Hayward

Subject: BT Anytime (kind of)
I use a BT Web-package offering unlimited Internet access at evenings and weekends. Shortly after renewing, BT terminated the service, but told me about BT Anytime. I decided to go for this. However, the new software to auto-dial BT Anytime is a DOS file. The BT helpline – when I eventually got through – told us there is no auto-dial Mac version, and that we'll have to do it manually. Thanks BT.
James Churchill

Subject: Market leader
As usual, *Macworld* is ahead of the game. Having seen the Brother P-Touch 9200 DX labelling machine in April's Product News, I called Brother. However, they'd never heard of it, and believed that *Macworld* was a figment of my imagination. For other eager customers Brother is shipping the 9200DX in early May.
Tim Littlewood

Subject: Digital hubub
Over the past year, Apple has been pushing digital multimedia and DVD as the way forward – iMovie, iDVD and Final Cut Pro are its flagship products. So, for Apple to fail to fit DVD playback into Mac OS X, I fear there's something more wrong than just polishing off the user interface. Perhaps the stuttering Music Player from the Public beta is a clue. I hope I'm wrong.
Alan Smith

Subject: Napster is theft
In his April *Macworld* column, Michael Prochak dismisses as "crap" issues of music copyright relating to Napster. The truth is, once you get below the A-list of millionaire recording artists, the vast majority of composers find it hard to make a living. TV and radio stations pay a royalty for using music, so why shouldn't users of the Internet? Enforcing this, I'm sure, is a complex – but victim-stomping by those perpetrating the thefts hardly seems a constructive start.
David Knopfler

Subject: Games price shocker
I was shocked to discover the prices of Mac games at London's HMV and Virgin Megastore. Elite Forces, Quake 3 and Ages of Empire were all £40. In the end, I bought a PC version of Ages of Empire for £10 and am playing it using Virtual PC.

I don't like having to pay £40 for games that PC owners are paying £10 for. I realize there are economies of scale, but surely companies could put out more dual-format titles? My six-year-old daughter has more games than I do, because most children's educational stuff is released as dual-format.
Mike Alsford

Star Letter: RAM down prices

I recently ordered a £1,899 PowerBook G4 from the Apple Store, and decided the 128MB of RAM on offer was too stingy, so looked into buying a 256MB chip. With RAM prices in freefall, I expected to pay no more than £180, but was stunned to learn Apple wanted extra £420 (ex VAT).

Is the company serious about making the Apple Store *the* place to buy a Mac? Not on this evidence. If its build-to-order options are going to include extra RAM, the price should be competitive.

I've since been quoted between £150 and £200 (both ex VAT) for the same 256MB module. eBay revealed an even better deal. The same product, including shipping to the UK, was on offer for $130. That's just £90.
Ed Harris

Subject: Apple's legal bother-boys
I've heard that Apple is now banning a service provided by a vintage Mac enthusiast's Web site. Surely, Apple should support vintage models?

These vintage Mac people are the same people that give so many future Mac users their first taste of Mac OS through recycled machines. They're also the same people that provide hours of unpaid support to new customers that Apple profits from through Web sites, such as **www.lowendmac.com**.

Apple is becoming another faceless and short-sighted corporation run by attorneys.
John Allan

Subject: Office bound
I feel sorry for Apple service engineers, because they can't get out much. When I became self-employed, people said I would miss the sociability of the office. The people I miss most are Steve, Dave, Mike and Brian – service engineers who came in regularly to fix the office PCs. At home, I've had Macs since 1994 and, in that time, have never met an Apple service engineer. Anything that has gone wrong I've been able to fix myself. Sticky problems have been sorted by a quick call to a friend, or a magazine such as *Macworld*. I considered buying a PC for compatibility with my clients, but, when adding up the cost of service and repair, it has been much cheaper to buy DataViz' MacLink Plus.
Ruari McCallion

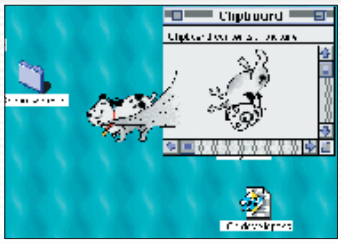
Subject: Base-ic AirPort mistake
I must correct one point in your otherwise excellent April review of the new PowerBook G4. The AirPort Card is installed by removing the base of the case, not the keyboard. Also, one must be very careful to lay the PowerBook on a non-scratch surface while doing this surgery! Love the mag.
Peter Trinder

Subject: Design disaster
So, Steve Jobs and co spent the last 18 months drawing pictures on iMac cases to create machines looking like the front of a florists and some sort of mutated dog? Well, I'd better get my order in right now for a new PowerBook G4 – before they turn luminous pink.
Andrew Williamson **MW**

The full version of After Dark 4.0 and a new stand-alone Marathon game head-up this month's CD. There's also trials of Nisus Email 1.5 and Pixels3D Studio 3.7, shareware, updaters and demos. Vic Lennard explains all...

MAIN ITEMS

After Dark 4 Full Version!

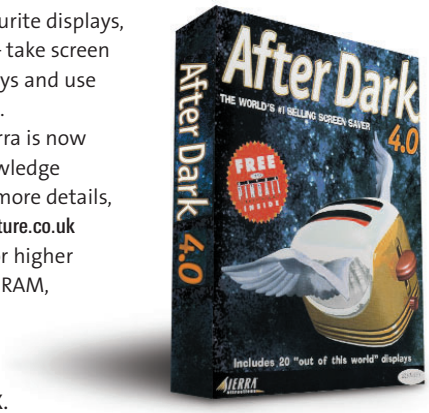


Here are 22 wacky animated-displays – with favourites such as Bad Dog, Flying Toasters and Fish World. Also included is a large selection of desktop wallpaper patterns, Randomizer for selecting favourite displays, and WallZapper – take screen shots of After Dark displays and use them as desktop pictures.

After-Dark creator Sierra is now concentrating on its Knowledge Adventure products. For more details, visit: **www.knowledgeadventure.co.uk**

Requires Mac OS 7.1 or higher with at least 4MB of free RAM, depending on the screensaver module.

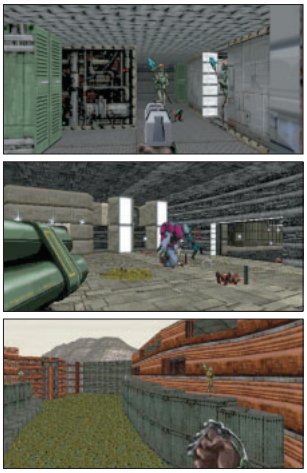
Incompatible with Mac OS 9.1 and Mac OS X.



Nisus Email 1.5 14-day trial

Nisus Email is a complete email client with a unique approach. It sends emails from within any application program with a minimum of actions. Receive all emails and manage archives efficiently using Nisus Email's filtering and the Finder's folder system as each message is a separate document, saved as a file.

Requires Mac OS 8.0 or later, a PowerPC processor and 4MB available RAM.



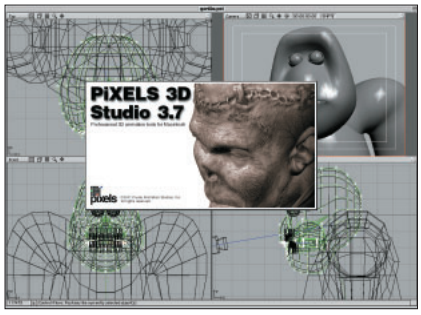
Marathon Rubicon

Four years in the making, Rubicon is the largest Marathon scenario project ever created and is a continuation of the Marathon Trilogy. It features over a dozen new characters, eight new weapons, tons of new scenery, seven network maps and more solo levels than any other Marathon scenario to date.

Fully stand-alone – it doesn't require any previous version of Marathon.

Opera 5.0 preview

Opera 5 is smaller and faster than other Web browsers, yet it is fully featured. Major new features include Instant Messaging, an integrated Web search function, OperaShow (which turns the browser into an advanced presentation tool, WAP-surfing), Integrated Java and a built-in email client. Pre-release version – may cause computer instability.



PiXELS3D Studio 3.7 trial

Professional 3D modelling and animation package boasting impressive features. Includes PixelScript (an intuitive, powerful scripting language), ShaderMaker (for creating procedural shaders), Organic modelling, and Inverse Kinematics. Convert the demo to a 30-day trial, by clicking on the 'Register Online' button and follow the on-screen instructions.

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CD 1
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INSTALL

Before you start working your way through the software on our CD, go to the System Utilities folder and make sure you install the following:

Acrobat Reader+Search 4
Install this version to be able to read many of the on-screen manuals.

StuffIt & RealPlayer
Versions 5.5 and 6.0.1 of StuffIt Expander and DropStuff are included as is the installer for RealPlayer 8.

System tools & ATM Lite
The CD also carries the latest version of InternetConfig, UnZip 5.32 and ATM Lite 4.6.1 (required for Suitcase 9).

QuickTime 4.1.2
Some programs require QuickTime 4.1.2. This can be downloaded from www.apple.com/quicktime/download.

INSIDE MACWORLD

Deus Ex MP Update
With this multiplayer patch, enjoy a whole new gaming experience with Deus Ex – duelling it out with fellow nano-augmented players.

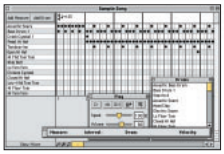
Macromedia Flash 5.0a
The standard for interactive vector-graphics and Web animation. Updated version improves reliability and stability. 30-day trial.

PGPfreeware 7.0.3
Provides easy-to-use, strong encryption for privacy and security. Use PGP to protect your email, files and even network connections. Freeware.

SIM express 1.1.2
Edit the phonebooks of your modem-equipped mobile/GSM phone, and exchange information with other desktop applications. Function-limited demo.

TableMaker 5
Defeat QuarkXPress's 20-tab limit and create complex tables. Puts XPress into demo mode.

plus...
Aladdin Transporter, BBEdit 6.0, Reason 1.0, Euro Hyphenator XT, HealthEngage Asthma, Short Words 1.0, SoundJam MP 2.5.2 Free, Table2000, Trade Assist 2.2.4

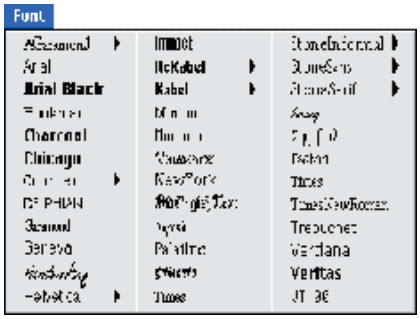


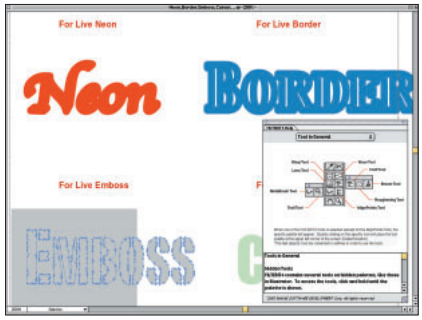
Virtual Drummer 4.1.2
Easy-to-use drum machine. Uses QuickTime – no external hardware needed. Shareware.

CD CATALOGUE

Courtesy of Mark Pirri's superb DiskTracker program, Macworld brings you a searchable catalogue of all our CDs from 1997 to 2001 – almost 212,000 files! This will grow month by month to allow you to find any file you want, without wearing out your CD-ROM drive. The latest version of DiskTracker (2.1) is also included – don't forget to register if you find our library useful.

SERIOUS SOFTWARE *includes*





ACTION WYSIWYG 1.0.3
A powerful and convenient way to work with fonts, ACTION WYSIWYG enhances the look-&-feel of normal font menus by adding features to make you more productive. It shows your fonts in their true typefaces in your font menus, and allows you easily to switch between WYSIWYG and normal views by simply holding down the shift key. Font families are gathered together, and your font menus turned into Multi-Column Menus – showing hundreds of fonts simultaneously. It is compatible with most major Mac programs and customizable per application.

Try the full program for 30 days.

GraphicConverter 4.0.4
The premier shareware image manipulator and converter. Imports over 145 graphic file formats, and exports to around 45 of them. Includes a full-featured browser, batch conversion with additional actions, slide show, easy creation of optimized images for the Internet, basic and enhanced image manipulation, and AppleScript support.

Version 4.0.4 has improved CMYK to RGB conversion for TIFF, JPEG and Photoshop files, and now imports ColorSync profiles. Other additions include smart trim option to print, improved Photoshop plug-in support, new overlay grid function and panning via the spacebar plus a host of bug fixes.

FILTERiT 4E tryout
Try this plug-in suite for Adobe Illustrator. It lets you create images that would otherwise take a long time with Illustrator alone. Some effects are simply impossible to make without FILTERiT. There are a wide variety of options, from simple distortion to 3D Transform on outlined objects. With 3D Transform filters, your objects can be transformed into spheres, spirals, donuts, or cylinders with just a click of the mouse. Preparing images for Web animation is made simple with the Trace option – produce motion blur effects by using Illustrator 9.0's transparency capability.

The Tryout version is limited to being used five times within the 30-day period.

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FAULTY COVER CD-ROM?

•If your cover disc is broken and you want a replacement CD, please contact Kelly Crowley, on 020 7831 9252, or email at kelly_crowley@macworld.co.uk.
•If your cover CD doesn't seem to work as it should, please check you have read all the instructions on the cover disc pages carefully first. If it still doesn't work, then please email Woody Phillips at woody@macworld.co.uk.

CD 1
MAY 2001

GAMES WORLD

Gorilla Warfare demo

You play Darwin and you've just received a postcard from your favourite uncle, Bonzo, who lives in Simian City. He writes that all the apes have been captured to be slaves and that they need your help to regain control of Simian City. But this task won't be easy. The map you need has been broken up into many pieces and has been scattered through time. Seek out the map pieces in different time periods throughout history, handling all the problems this platformer throws at you.

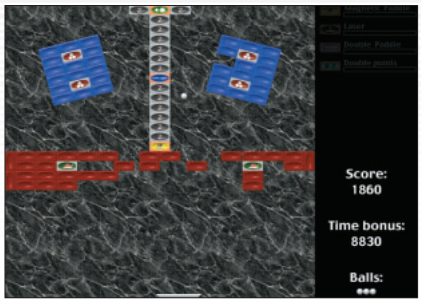
The demo includes half of the Lava P'Lava world. The full version includes five full worlds and a level editor.

Requires a Power Mac running Mac OS 8.0 or higher with 15MB free RAM.

Captain Bumper demo

A fun cartoon-style game. Help our super hero, Captain Bumper, to free a princess held prisoner on a mysterious planet in this two-level demo.

Requires a Power Mac running Mac OS 8.6 or later and 40MB free RAM.



Colibricks

A number of new games to enjoy among this month's Top 10 Shareware Games. Guess the opponent's face in Indovina, inspired by the famous board game *Guess Who?*. Play a modern-day wall game with Colibricks, a next-generation brick-'em-up. Enjoy Iggy's Adventure, a rather novel springboard-based platformer. And then there's Wumpus 2.0, where you have to avoid the gas, spiders – and wumpus...

There's always space for the latest versions of your favourites including ManicMinefields 1.4.3, ∑ Chess 5.1.3, Poor Man's Solitaire 2.2.1 and Mike's Cards Lite containing seven popular solitaires.

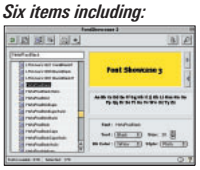
Finally there's TheZone 1.5.1, an excellent asteroids-style arcader, and RightWord 1.0.2.

ALSO ON THE CD

COMMS & INTERNET
14 applications including:
Download Deputy 4.2.2
eMail Alert! 2.2
HTML-Optimizer 4.2
HTTP Benchmark 1.3.2

EDUCATION
Three utilities including:
Verbs & Nouns 2.4.6
WorkSheet Maker 2.0.1

FONTS
Six items including:



FontShowcase 3.0.7
FontBuddy 2.1.1

GRAPHICS
Eight items including:
ButtonMaker 2.2
iView MediaPro
RainbowPainter 2.0.0
Screen Catcher 2.3.1

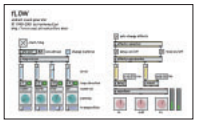
ICONS & UTILITIES
IconizerPro 1.3.8

INFO

ATPM 7.03
MacScriptersMag issue 4
plus ten utilities for developers

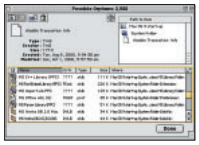
SCREENSAVERS
Three items including:
Gaea 1.0
NOVA 4.1

SOUND & MUSIC
Nine programs including:

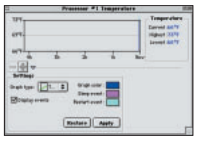


fLOW 1.2 light
MP3 Rage 3.1
QuickTime DJ 1.1
Sound Studio 1.5.4
Virtual Composer 2.7.8

UTILITIES
Seven categories with over 40 useful tools for your Mac including:
Address Pad 1.2.5
AutoCat 2.9.1
ConverTable Units 1.7
DiskSurveyor 2.0
Doublet Scan 3.3.0



File Buddy 6.0.6
Glidel 5.1.2
MI Convert 2.7
MoosePad 1.2
PrintToPDF 2.2.1
Quit It 2.4.2
Server Sentinel 2.0.2
TableText 1.0.5
TextBroom 3.5.1
Tex-Edit Plus 4.1.1



Thermograph 1.3.0
txt2pdf 4.4
Wapp Floater 3.1
Wapp Pro 3.0

UPDATERS
This month's dedicated updaters folder includes over 70MB of patches to bring many popular applications bang up-to-date, including:
ConflictCatcher 8.0.8
Flash5.0a
Media 100 i v7.0.2
MouseWorks 5.60
NetBarrier 2.0.2
Norton AntiVirus 5-7 (03/01)
Retrospect 4.3 Driver 2.1
StuffIt Deluxe 6.0.1
TechTool Pro 3.0.3
Virex (03/01)
VirusBarrier Updater 1.5.2

DON'T MISS...

Cool Extras

Game Doctor 1.3
Huge collection of hints, cheats & walkthroughs.

The Free Memory Show 2.1
Useful utility that warns of impending memory problems and more.

Mac ISPs

Internet access offers from Abel gratis, AppleOnline & LineOne.

Netscape/Internet Explorer

Complete packages for Netscape 6 and IE 5.

Plus...

... many thanks to Simon Youngjohns for our CD icons.

SHAREWARE

Association of Shareware Professionals

Shareware is a distribution method, not a type of software. It makes fitting your needs easier, as you can try before you buy. Shareware has the ultimate money-back guarantee – if you don't use the product, you don't pay for it. If you try a Shareware program and continue using it, you are expected to register. Support shareware authors so that they continue to provide high-quality programs for the Mac.

page 18

Free! The entire 2000 Macworld back-catalogue. Every review, feature, create, tip, news item and regular, all packaged in easy-to-access, searchable Adobe Acrobat PDFs. With each page of every issue bookmarked, navigation couldn't be easier. Vic Lennard guides you through the archive...

Macworld Past Issues 2000

Courtesy of Adobe Acrobat, you can now read on-screen, all 860 editorial pages from the 2000 issues of Macworld. Even better, the entire collection is searchable – just type in a word or phrase and all pages containing it will be listed. Acrobat Reader 4 – included on the CD – requires a Power Mac. Additionally, you'll need to give around 25MB of memory to Acrobat Reader 4, due to the graphic-intensive nature of the pages.

A how-to guide to the CD

- Install Acrobat Reader+Search, which can be found in the Install Me 1st folder.
- Once installed, increase Acrobat's memory allocation to 25MB.
- Double-click on the Issue Selector file.
- Click on a cover: this takes you to the Contents page for that issue.
- Use the floating Bookmark palette to move around the magazine. This can be toggled on/off via your F5 keyboard function key.
- You can also move directly to a feature by clicking on its title on the Cover or the Contents page. The cursor changes to a pointing finger.
- Clicking on a Web site address in News, Product News, Opinions, Reviews, Features, Creates, Secrets and Q&A takes you to that site via your browser. The cursor changes to a pointing finger with a 'W' on the back of the hand.
- Zoom in by using ⌘-<spacebar> and out by using ⌘-<alt>-<spacebar>. Use the cursor keys, <return> or <enter> to go to the next page or move down if zoomed in. Use ⌘-0 to fit to screen and ⌘-1 to zoom to 100 per cent.
- Use the Bookmark to go back to the Cover and click on the Return to Issue Selector button in the bottom-left corner to go back to the start.
- If you need information but you don't want to refer to this page continuously, the Read Me 2nd PDF on the CD contains all necessary information.

Using the search facility

- Start at the Issue Selector and click on one of the covers.
- ⌘-shift-X gets the Index Selector. Macworld 2000 should be checked. If not, go to the 2000 folder on our CD and select it there.
- ⌘-shift-F then brings up the Search window. Type in a word or phrase you would like to find and click on OK to bring up the Results window showing all occurrences.
- Double-click on an item in the list. You'll be taken to the relevant page with the word highlighted. ⌘-] takes you to the next occurrence, ⌘-[to the previous one.
- ⌘-shift-G takes you back to the Results window.
- ⌘-shift-W brings up the Word Assistant – use this if you're having problems with a particular word.

Easy navigation

Click on a cover in the Issue Selector to open the magazine for that month, and the on-screen bookmarks to move between its pages.

Worldwide wait for Mac OS X at an end

Mac OS X was launched at midnight on March 24, and Apple celebrated with a global programme of press conferences and special events.

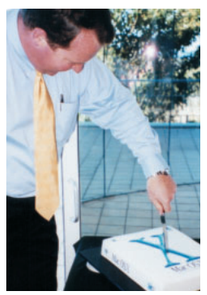
Mac OS X is built on a Unix-based foundation called Darwin. Apple CEO Steve Jobs said this means that by the end of the year, Apple will be the world's largest supplier of a Unix-based operating system. This fact is likely to lead to a an abundance of industrial-strength Unix software porting to the Mac – either with, or without an Aqua interface to control the software running beneath the surface. This trend is apparent from glancing at Mac OS X pages on Apple's Web site, which shows many developers new to the Mac arriving from the Unix and Linux development communities.

OS X costs £99 (including VAT), and is available from all Apple resellers and the online Apple Store. The initial release lacks key features, such as CD-burning and DVD playback. Apple has promised free updates for these problems in the coming weeks. OS X replaces Mac OS 9.x, which is descended from Mac OS 1 – dating back to the launch of the Macintosh in 1984.

Jobs said: "OS X is the most important software from Apple since the original Mac OS in 1984 that revolutionized the entire industry. We can't wait for Mac users around the globe to experience its stability, power and elegance."

Apple began revising its OS ten years ago, but it took the return of co-founder Steve Jobs, and the purchase of his NeXT venture, to realise the dream.

Have I got queues for you...
Mac fans queued outside Micro Anvika's store in Tottenham Court Road, London (above, left) for the shop's OS X-launch party. They also mobbed the shop's tills (above, right) when Apple's next generation OS went on sale at the stroke of midnight.



Outback in business
Apple Australia was so thrilled at the arrival of its new OS that it baked a Mac OS X cake. Here's Apple Computer Australia's acting managing director, Ben Bowley, doing the honours.

First X updater released

A reported update for Mac OS X was circulating as *Macworld* went to press. If released, it is thought the update will be made available through the Software Updates System Pref in Mac OS X. It is also rumoured that the update will be installed in iTools members' Software folders by Apple, although the company would not comment on this.

The 4MB installer reportedly changes the Core Services directory, adds a number of drivers, implements secure-shell support, updates elements of AppleShare, some Multimedia command sets and improves Mac OS X's compatibility with digital cameras. It also offers speed enhancements. CD-burning capability is also missing from Mac OS X, but this will be remedied by a later April update. A patch to support DVD playback in OS X is promised "this spring".

Apple CEO Steve Jobs said the omissions were due to the company facing choices in how to use its engineering resources: adding CD-burning support in OS X, or implementing third-party CD-authoring support in Mac OS 9.1. Apple also took the decision to release Mac OS X in its present form to gather more user feedback, and to improve it as necessary. Jobs described this as the "viable" path.

RAM-module bug

Another issue is that OS X is reported to disable a number of third-party RAM modules. Neither does it support Apple's Final Cut Pro 2 digital video-editor, or offer built-in support for Nvidia's new GeForce graphics accelerator. Apple promises regular updates to address these omissions. Visit www.macworld.co.uk for up-to-the-minute OS X news.

Jobs also dismissed reports that the Power Mac G4 Cube team has been disbanded: "That's not how Apple works", he said. **MW**

London's Micro Anvika was one of a handful of resellers chosen by Apple to help promote its next-generation OS. The store opened its doors at 11pm on Friday, March 23, allowing in a queue of Mac fanatics, who enjoyed watching product presentations from Alias|Wavefront, Connectix, Corel and FileMaker. At midnight came the moment they had been waiting for – the first copies of OS X went on sale.

OS X snapped-up

Around 500 people rolled up before the doors shut at 1am, and 208 copies of OS X were sold. The shop sold a further 350 copies the next day – not including pre-orders.

One attendee, Michael Ebanks, of Splash New Media, said: "This could be as big as 1984, when the original Mac was launched."

A survey of resellers in early April revealed that OS X is selling fast.

"We've sold half our allocation," said one reseller. And Apples UK's software business manager Stuart Harris told *Macworld*: "We sold pretty much the whole UK allocation of OS X over the weekend."

Garrett Doyle of MacLine said: "It's being picked up by Apple's early adopters who are more technically aware than many. We thought we may be inundated with support calls, but this hasn't happened."

Other resellers contacted by *Macworld* echoed Doyle's sentiments, though many felt that this may change when the OS is launched "properly" in July.

Apple plans to pre-install OS X in all its Macs from July, and many major applications for Mac OS X are expected to be made available at that time. As the OS reaches less experienced users, resellers expect to receive more calls seeking support.

Apple expects 3,100 applications built for Mac OS X to be released by July. It has high-level industry support. Macromedia CEO Rob Burgess calls OS X's new Aqua look "a real human interface".

History in the making

Apple's users understand the importance of OS X. "I had to be here. It's an historic event," said freelance graphic-designer, Fabio De Rosa (pictured right).

"We expected 100 or so people," said a security guard at Micro Anvika's Tottenham Court Road shop. "But we've seen 400 to 500 visitors during the night."

Apple PR manager David Millar, said: "Everyone I've talking to has been a professional designer, Web animator or programmer. We have an audience of professionals here."

Woz up, amico?
At the stroke of midnight on 24 March, Elite Computers & Software – an Apple specialist next to Apple's Headquarters in Cupertino – cranked up the lasers (above, left) and welcomed Apple Computer co-founder Steve Wozniak. "We were selling OS X well into the morning," said president and CEO Thomas Armes. Apple Italy, meanwhile, marked the launch of OS X with a party at Milan's Mondadori MultiCenter (above right). Apple Italy's managing director, Enzo Biagini said: "We expect a real OS X boom after the summer, when the major applications become available for OS X."

The London crowd, however, did have some reservations. Harmish Patel, head of design at Entranet, said: "The concern is its adoption by the market, and how many applications will be written for it".

James Stewart, a designer at BBC Online, observed: "My only concern is that they establish an easy upgrade path for the applications we've been using for years. Will users be expected to buy OS X-compatible versions of these at full price?"

Upgrade path of enlightenment

But Gary Young, Micro Anvika's director of purchasing, said: "As a reseller I expect an upgrade path for existing users of Mac applications". His message to Apple's customers was simple: "You are not going to get fleeced," he said.

Apple PR Millar agreed: "It's the start of a new story, not a chapter."

Mac OS X's features include true memory-protection, pre-emptive multitasking and symmetric multiprocessing on multiprocessor Macs. It offers a powerful graphics engine (Quartz), and implements advanced-PDF standards support. OpenGL and QuickTime 5 are also integrated within the OS. All its features are accessed through a new user interface, called Aqua. Other features include dynamic-memory management and enhanced power-management. **MW**

Jonny Evans

X out of 10

■ Read *Macworld's* **eight-page special feature on Apple's next-generation operating system, starting on page 72:**
Review, page 72
Install tips, page 78
Customize X, page 79
X software, page 80

Tattoo you
"I live and breathe Macs," said freelance graphic designer Fabio De Rosa, who snapped-up a copy of Apple's new OS at the UK launch at Micro Anvika.

Star-studded Apple ad on UK TV in April

Key Apple software X-tended

Apple has released Carbonized versions of iTunes, iMovie 2 and an OS X-friendly preview version of AppleWorks 6.1 for early adopters of its new operating system.

The company has also released an International English (IE) version of iTunes 1.1 – its desktop digital-jukebox – which will run on Mac OS 9. iTunes manages and plays MP3s and CDs, tunes into Internet-radio stations and burns CDs on supported CD-RW drives. Other features include psychedelic sound-wave-driven visuals of music as it plays. See *Macworld's* review, March 2001.

Apple said: "A development kit that programmers can use to create additional iTunes visual-effects plug-ins will be available from the Apple Developer Connection."

Apple has released software for removing US-English versions of iTunes from IE machines running Mac OS 9.x. "If you have previously installed the US-English version of iTunes software, you should remove it before installing the International-English version," Apple warns. This is to prevent instability, system degradation and unexpected crashes.

CD-authoring patch

iTunes 1.1 for OS X has all the features of the OS 9.0 version, but will not burn CDs or display full-screen visual effects. Apple has released a patch to restore CD-authoring abilities to iTunes, which is available as a download from www.apple.com.

iMovie 2 for Mac OS X has no limitations – it's an OS X-compatible version of Apple's consumer-grade digital-video editing software. With iMovie 2, users of FireWire-equipped Macs can download digital video from DV camcorders or other FireWire-equipped video devices, edit the video, add titling, transitions, audio and special effects, and export the finished product to tape or to QuickTime.

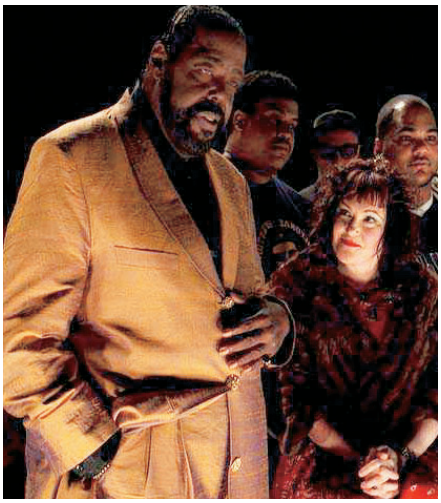
Apple has also released AppleWorks 6.1 Preview for OS X, a pre-release version of its productivity suite. The Preview offers word processing, spreadsheet, database and page-layout functions, and is distributed as an update to the OS 9.0-compliant AppleWorks 6.0.4.

Apple notes that neither iTunes nor iMovie for Mac OS X will work with Mac OS X Public Beta, but are for the final release of Mac OS X only.

Mac OS X offers built-in access to iTools, Apple's suite of online tools offering a free email account, a Web-site builder, 20MB of free online storage on Apple's servers, online e-greetings cards and KidSafe, a child-friendly list of approved Web sites.

To help its users, Apple has placed downloadable installers for all these applications in iDisk users' software folders. With Mac OS X's integration of iTools as part of the desktop, Apple watchers are predicting the company will further develop its online offerings. **MW**

Jonny Evans



One for the ladies
Apple's iTunes ad features a cast of musicians including Barry White, George Clinton, Liz Phair, Steve Harwell, De La Soul, Ziggy Marley, Chuck Berry, Dwight Yoakam, Exene Cervenka, Iggy Pop and Deep Dish.

Bargain bass-ment

Apple UK has cut the price of its iSub USB sub-woofer from £79 to £49. The 20W iSub works only with slot-loading CD/DVD/CD-RW iMacs running Mac OS 9.0.4 or later, and post-January 2001 G4 Power Macs with Apple Pro Speakers and Mac OS 9.1. Harman Kardon's SoundSticks – which include an iSub – remain £139.

Firms ready OS X drivers

The official release of Mac OS X has paved the way for peripherals manufacturers to update software drivers for their products for users of the new Unix-based operating system.

Bundled with OS X are generic drivers for **Epson** printers for its Stylus Color 680/880/760/860 and 740 models. Epson is working on drivers for its other products.

HP plans Mac OS X-driver support for its ScanJet scanners, DesignJet large-format printers, business inkjet printers, LaserJets and PhotoSmart photo printers. It is making drivers available at www.hp.com/go/mac-connect.

Lexmark is creating OS X drivers for its Z-line of Color Jetprinters, including the Z12, Z22, Z32, Z42 and Z52. These will be available for download from Lexmark's Web site (www.lexmark.com/drivers).

Canon plans to create Mac OS X drivers for its scanners and Bubble Jet printers. Mac OS X supports its S400, S450, S600 and S800 printers.

Brother says that Mac OS 9-compatible print drivers will work with OS X in Classic mode if Multiple Users is disabled. It warns that scanner drivers for Mac OS 9 will not work with OS X. Brother will release drivers on its Web site (www.brother.com/e-ftp/macosxstate.htm).

Keyspan has released beta serial-to-USB drivers for OS X. These are available for download from www.keyspan.com, and support serial peripherals, including Palm HotSync cradles.

Agfa will introduce OS X versions of its scanner-controlling software solutions – ScanWise and FotoLook – in the third quarter of 2001. Beta versions of these will be available in June.

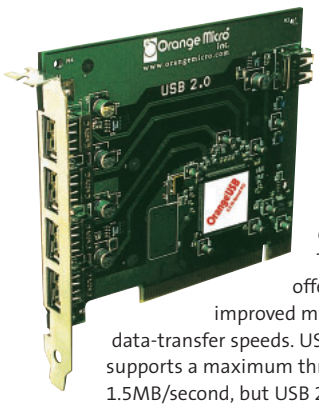
Hermstedt is developing drivers for all its devices, and will ship these in the second quarter of 2001.

Asanté has announced product and technical support for Mac OS X. Fully supported X drivers for all its products are available for download from www.asante.com. **MW**

USB 2.0 winging way to Mac

Orange Micro has developed four products designed to bring USB 2.0 connectivity to the Macintosh.

USB 2.0 is the successor to the prevalent USB 1.1 standard used in many devices, including products across Apple's current range. The revision offers much-improved maximum data-transfer speeds. USB 1.1 supports a maximum throughput of 1.5MB/second, but USB 2.0 offers 60MB/second. It's also backwards-compatible with USB 1.1 devices, although its speed enhancements are lost when a USB 1.1 device is put on a USB 2.0 controller, which ramps down to USB 1.1 speeds.



Orange Micro has been at the forefront of developing USB 2.0 connectivity for the Mac. It showed its first such products in July 2000.

The company is bringing its products to the US market over the coming weeks. UK distributor AM Micro (01392 426 473) warn that there could be a few weeks delay before the products reach the UK.

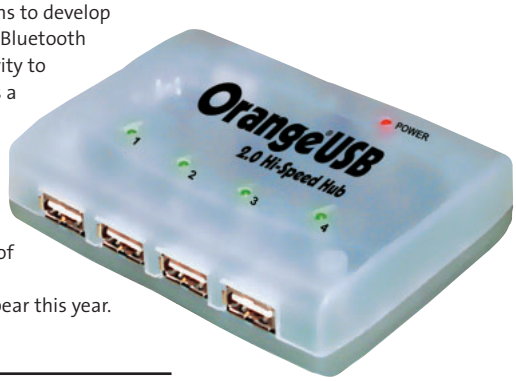
May product-rush

The first USB 2.0 product to ship will be the OrangeUSB 2.0 Hi-Speed PCI card. This has four external and one internal USB 2.0 high-speed ports. The company has already developed a number of drivers for this board – including those for Mac OS X. This will cost £68, and should be available by May.

Orange Micro is also set to release the £91 USB 2.0 Hi-Speed CardBus PC card, followed by the OrangeLink+ FireWire and USB 2.0 board (£113) and OrangeUSB 2.0 Hi-speed Hub (£69). This last product will be released in the US at the end of May. The hub has five ports that will connect to both USB 2.0 and USB 1.1 devices.

USB 2.0 is not the only standard coming to the Mac. During Macworld Expo San Francisco, Mike Ridenhour president of Keyspan, spoke about his company's plans to develop solutions to bring Bluetooth wireless connectivity to Macs. Bluetooth is a specification that describes how different electronic devices can communicate wirelessly. A slew of products built on Bluetooth will appear this year.

Jonny Evans



The future's Orange
Orange Micro will ship two USB 2.0 products in May – the OrangeUSB 2.0 Hi-Speed PCI (left) and the OrangeUSB 2.0 Hi-speed Hub (below).

Apple retail plans 'a goer'

Apple is planning a broad roll-out of own-branded stores in the US, press reports claims.

A *Wall Street Journal* report – that Apple is opening four stores in California, and Chicago – has been followed up by regional US press reports claiming similar roll-outs across the country.

President of Memphis-based Poag and McEwen Lifestyle Centers, Terry Ewen, says he has plans to house a 6,200-square-foot Apple store in a centre opening this November in Colorado. Ewen was quoted by the International Council of Shopping Centres (ICSC) as saying: "Apple is opening lots of them around the US now."

Reuters also claims Apple is seeking retail space in Pittsburgh, New York and Buffalo. Further ICSC online reports suggest Arizona and Washington DC as possible locations.

Apple's retail-experts move

Apple has recruited experienced retailers to its management team, including George Blakenship, a former vice president of Gap, and Ron Johnson, former merchandising director at Target. Millard Drexler, president and CEO of Gap, also sits on Apple's board. Today's Macs are sold by authorized resellers and via the Apple Store.

Apple launched a UK retail partnership with PC World in February, installing the first of its "Mac Ecosystems" – environments built to reflect the Apple experience – in ten stores in the UK. Dixons also sells Macs through its Business Catalogue.

UK resellers warn that to extend an own-brand retail strategy to the UK would be "damning". "Our client-base would be reduced and our margins affected by reduced sales. There'd be no room for resellers," said one.

Others feel less threatened: "It would generate more sales," said one industry insider: "It could be a problem for independent resellers, as it could increase the problems they already have getting stock."

Another observes: "It won't affect business, as UK customers prefer to deal with dealers they know. With retail outlets, there's no guarantee that customers will speak to the same person again. To succeed here, they'd have to open ten stores, and European consumers are different from US ones.

"If Apple brought stores to the UK, it would lose more money than it is already," he said. Apple won't comment on its retail plans.

Dominique Fidéle

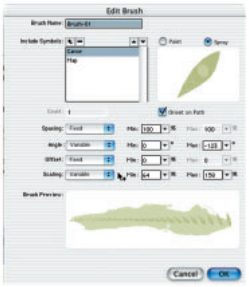
Digital bonanza

Win an HP PhotoSmart C618 digital camera and a PhotoSmart P1000 printer worth over £750 in Macworld Online's digital-photography giveaway.

To enter, simply go to www.macworld.co.uk and answer a number of questions about the products.

You'll find the information you need on the Imaging Store's Web site (www.theimagingstore.co.uk). The competition runs until May 10. The Imaging Store's Web-based service has been custom-built to help imaging professionals find the information they seek about the products they need.

Carbonized FreeHand 10 announced



You need FreeHand...
Brushes (above) are among the new inclusions in FreeHand 10, which has been Carbonized to run as a native OS X application (below).

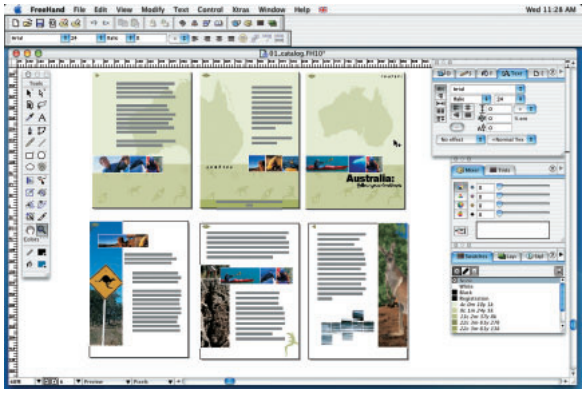
Macromedia has announced FreeHand 10 and Director 8.5 Shockwave Studio.

The updated version of FreeHand, Macromedia's vector-illustration program, has been fully Carbonized to run as a native Mac OS X application. The revised application offers a host of tools designed to expand the reach of the application.

It offers tighter integration with Flash, and has been developed for designers wishing to create images for the Web that can easily be ported to print, and vice versa. The interface has also been revised, becoming the standard interface that is now found across Macromedia's Web-publishing range.

FreeHand 10 offers editable vector-transparencies, contour gradients, custom paint and brush strokes, and editable symbols.

FreeHand author Sandee Cohen said: "It's exciting to finally have brushes in FreeHand 10. Not only do they help me add a more organic look to my artwork, but they can be used as part of the Flash animation process."



Graphics boost

Master Page is a new function that helps users update large-graphics projects. It can move graphics across as many as 660 pages per document. The application has been updated to let artists move easily between a FreeHand and Flash authoring-environment.

FreeHand 10 can also publish Flash files to the Web as static vector-graphics, or as animations with a range of export options. Flash 5 users can import FreeHand illustrations – and now get to retain layer information and master pages.

FreeHand 10 offers a URL Editor that sets up hyperlinks and hot-spots to multiple pages within a document. It understands HTML, PNG, GIF and JPEG files.

Other new features include symbol-based brush and spray strokes, and support for embedded fonts in Mac and Windows EPS files.

FreeHand 10 costs £279. Users of previous versions may upgrade for £99. The Flash 5/FreeHand 10 Studio will cost £399.

Director 8.5 Shockwave Studio, meanwhile, has not been Carbonized but does incorporate Intel's 3D Graphics software. This allows complex animations to be broadcast over low-bandwidth connections.

Macromedia has added Flash 5, RealVideo and RealAudio support to Shockwave, and also added server-level enhancements for online gaming.

Director 8.5 has 300 additional Lingo programming keywords built-in to help animation developers.

There's a preview of Director 8.5 Shockwave Studio on page 67.

The full application costs £949, with upgrades from version 8 to 8.5 costing £149. Upgrading from an earlier version is £299. Both products are available from Computers Unlimited (0208 358 5858). **MW**

Jonny Evans

Cube car

Nissan demonstrated its Power Mac G4 Cube-toting concept car, the Nissan Chappo, at the Geneva Motor Show. The car has a built-in entertainment system – serviced by a pair of G4 Cubes. Nissan says it has designed the car to be "an extension of the driver's social gathering space".

Final Cut Pro updated to 2.0

Apple has upgraded video-editing, compositing and special effects application, Final Cut Pro to version 2. The video-editing suite has been enhanced to reflect recent software releases from Apple. It now links with Apple's DVD Studio Pro for sophisticated DVD authoring, and takes full advantage of features in QuickTime 5, which is now an integrated element of Mac OS X.

Final Cut Pro 2 has been developed with an extendible, real-time architecture. Run on a system in conjunction with Matrox's RTMac (see Product News, page 37) it will edit video in real time, apply effects swiftly on the fly and also offers fully integrated compositing functions.

The application is speeded up by its built-in support for the G4's Velocity Engine. Media-management features now include improved accuracy in its controls, multiple media bins and folders for storing clips and effects.

Costing £680, it ships with Media 100's compression tool, Cleaner 5 EZ, and the BIAS Peak DV two-track digital-audio editing program. MW

Jonny Evans

Reviewed on page 58

Smooth runner
Much under-the-hood work has taken place in Final Cut Pro 2 – Apple claims it will run up to 30 per cent faster on G4 systems, and 70 per cent faster on dual-processor G4 Power Macs than before.

Happy Birthday, Apple! (25)

Motorola speeds G4 chips, 1GHz 'in August' say sources

Motorola is close to offering a 1GHz version of its PowerPC G4 processor, according to reports. The company wouldn't comment on a rumoured August release date for a much-needed gigahertz chip, but European marketing communications manager Paul Clark did tell *Macworld* that production yields for 733MHz chips are "increasing", and faster speeds are possible. The increase in fast G4 chips has enabled Apple to release a £2,099 (ex. VAT) CD-RW model of its fastest Power Mac – see Reviews, page 50-51.

Insider sources also report that 800, 866 and 933MHz G4s – based on the recently released PowerPC 7450 – are to be rolled out during the coming months. Clark confirmed that Motorola is capable of producing chips at speeds in excess of 733MHz.

"We have not officially committed to a release date for these," he said. "This build of the G4 would be capable of reaching speeds in excess of 1GHz. This exceeds our original expectations for the 7400 series."

Historically, processor supplies have created hurdles for Apple when it comes to delivering new products. In November 1999, Apple's shares took a battering when the company had to "reconfigure" its then-cutting-edge 500MHz Power Mac G4 systems – blaming Motorola for failing to produce sufficient quantities of G4 chips. At the time, Fred Anderson, Apple's chief financial officer, said: "Despite receiving orders for over 150,000 G4 systems, we were able to ship only 64,000 – far short of our plan."

Apple at chip mercy

Former Apple Europe vice president and general manager Diego Piacentini commented: "Apple is under the thumb of its suppliers, who struggle to maintain high-level development and manufacturing volume of the products that Apple, their only client, needs."

"Relying on two processor suppliers [Motorola and IBM] means always being at the mercy of their deficiencies. Motorola is a company in crisis, and IBM is only a little better off. But, at the moment, it's unthinkable for Apple to rely on only one of these," Piacentini added.

"I'm sure this terrible situation keeps [Apple CEO] Steve Jobs awake at night." MW

Apple's 25th birthday slipped by unnoticed as the company and its friends celebrated the launch of Mac OS X. In many ways, the launch of the new operating system marks a rebirth for the company.

1976 – *April 1:* Apple Computer founded, with its articles of incorporation signed on April Fool's Day. Traditionally, April 1 was the one day of the year when peasants were allowed to poke fun at their lords and masters – the day the world turned upside down. Ironically, this is what Apple has done to the IT world many times over during its 25-year existence. Founders: Steve Jobs (21), Steve Wozniak (25) and now-forgotten Ron Wayne (27). Wayne resigned later that year, and was paid off $1,700 – four years later, his 10 per cent share would have netted him well over $100 million. Apple I introduced.
1977 – Apple launches the Apple II (with 4K RAM). This became the best-selling PC ever, with an installed base of 2 million by 1984. Michael Scott becomes first president of Apple, and issues ID numbers to staff. Scott awards Woz with badge number 1. An angry Jobs demands Scott reconsiders, but then suggests a compromise, and is given badge 0. Jobs commissions Rob Janov to create now-famous multicoloured Apple logo.
1978 – Apple moves into its new corporate HQ, and licenses BASIC from Microsoft.
1979 –VisiCalc spreadsheet becomes the killer application that creates the PC revolution. In December, Jobs visits Xerox PARC (in exchange for letting Xerox invest $1 million in Apple), and Jeff Raskin begins work on the Macintosh Project.
1980 – Apple goes public, with 4.6 million shares selling in minutes to give the company a market valuation of $1.778 billion. Jobs is worth $217 million; Woz, $116m. It is the biggest initial public offering since the Ford Motor Company in 1956.
1981 – Jobs becomes Apple chairman; Wozniak injured in plane crash. Jobs now heads Macintosh project. IBM releases its first PC. MS-DOS introduced.
1982 – Bill Gates writes a BASIC interpreter for the Mac, becoming the failed MS BASIC. Chiat/Day writes the famed 1984 TV commercial – originally conceived for the Apple II, but the ad didn't get made.
1983 – *January:* Apple introduces the pre-Mac Lisa, with graphical user interface. Jobs woos Pepsi-Co president John Sculley to become president and CEO of Apple: "Do you want to spend the rest of your life selling sugared water, or do you want a chance to change the world?" Apple enters Fortune 500 at number 411 – at the time, making it the fastest-growing company in history.
1984 – *January 22:* During the third quarter of the Super Bowl, Apple aired *1984*, its famous 60-second TV commercial introducing the Macintosh. Filmed in London's Earl's Court, and directed by Ridley 'Gladiator' Scott, the Orwellian scene depicted IBM's Big Brother world being shattered by the young new machine. *January 24:* Macintosh is launched. "Hello, I am Macintosh. It sure is great to get out of that bag... Never trust a computer you can't lift," it tells the world. Don't mention the Mac Portable (1988)...
1985 – *February:* co-founder Steve Wozniak leaves Apple. *April 10:* Sculley backed by Apple's board when he demands that Jobs stand down from running the Macintosh division. *July 15:* Aldus launches PageMaker 1.0. *May:* Jobs plans a coup, and demands Sculley quit the company. He loses and leaves Apple in September, taking several high-ranking Apple engineers with him. *November:* Sculley signs fateful deal saying Bill Gates may use Mac technology in Windows, if Microsoft continues to produce products for the Mac.
1986 – *February:* Jobs founds NeXT. Japanese and Arabic versions of Mac OS introduced. SCSI standard accepted by American National Standards Institute (ANSI).
1987 – One-millionth Mac produced. AppleShare introduced. Mac reaches System 4.2. Apple's software offshoot, Claris, launched.
1988 – Apple ships A/UX (Apple Unix) for Mac II in February. *March 17:* Apple sues Microsoft (and HP) over copyright

infringement of the Mac OS in Windows. Apple partners with another company to create an online service for its users. Apple shuts it down before the Mac version of service is launched. The other company becomes America Online (AOL). System 6.0 introduced. *October:* NeXT releases "the Cube".
1989 – Mac Portable introduced, weighing a massive 15.8 pounds. *August:* Apple makes the "SuperDrive" 1.4MB floppy disk standard in Macs.
1990 – Apple diversifies its products, developing low-cost Macs for consumer and education markets. These include the education-aimed LC and consumer Classic models. *January:* Michael "The Diesel" Spindler becomes Apple's chief operating officer. By November, he's president. *May:* Microsoft ships Windows 3.0, giving the Mac serious competition as a graphical operating system.
1991 – Apple, IBM and Motorola begin development of the PowerPC processor. Apple also begins work on the Newton handheld device. Apple launches the PowerBook 100, designed with the help of Sony. System 7.0 and QuickTime introduced.
1992 – Court rules in favour of Microsoft in the lawsuit over Window's similarities to the Mac OS. First consumer Performa models launched. *January 7:* Apple CEO John Sculley rhapsodizes on "digital convergence" during a trade-show keynote.
1993 – Motorola introduces the PowerPC processor. Ten millionth Mac ships. *June:* Sculley is replaced as Apple's CEO by Michael Spindler. *August:* First Newton MessagePad ships. By the end of the year, there are over 50,000 Newton users. *November 15:* Apple quietly drops the Apple II line, after shipping 5 million units.
1994 – On tenth anniversary of the Mac, Apple launches the first Power Macs. In the first ten months, Apple sells one million units. *September:* Apple announces plans to support Mac clones. IBM offers to buy Apple at $40 per share. CEO Spindler rejects the offer, demanding at least $60.
1995 – Canon's offer to buy Apple at $54.50 per share is rejected. Desperate to sell, Spindler approaches IBM (again), Compaq, Hewlett-Packard, Philips, Sony and Toshiba. Sun offers $23 per share – offer rejected. Apple grants Power Computing licence to produce Mac clones. Two years of cloning follows, with Motorola, Daystar, Umax and others building Mac-based machines. Many sell their machines into Apple's existing markets, reducing its market share. Microsoft launches Windows 95, its most Mac-like OS so far.
1996 – Apple introduces the eMate, a rugged "laptop" running Newton OS. *January 31:* Spindler sacked, and replaced by Dr Gil Amelio. *February 12:* Oracle CEO Larry Ellison admits that he and Steve Jobs are considering making a bid to buy Apple.
1997 – PowerPC G3 appears. Twentieth Anniversary Macintosh is announced a year late. Only 20,000 ever produced. Apple buys NeXT for $425m in order to use its NeXTStep operating system as a foundation for a next-generation Mac OS. *January 26:* Steve Jobs becomes an "advisor" to Amelio. *July 6:* Gil Amelio is forced to resign as Apple CEO. *August 6:* During his keynote at Boston's Macworld Expo, Steve Jobs is hailed as Apple's interim CEO. He announces changes to Apple's board of directors, and, in a historic moment, introduces Bill Gates to a booing crowd. Gates appears on giant video screen, in an image reminiscent of Apple's own *1984* TV commercial. Microsoft invests $150m in Apple, and commits to at least five years of developing its Office applications to the Mac. Apple buys Power Computing for $100m.
1998 – Apple's first year with four profitable quarters since 1985. Apple's new product strategy announced – pro and consumer desktops and portables. Apple phases out Newton and eMate. *August 15:* iMac introduced, becoming the top-selling US computer from day one of its introduction.
1999 – Apple reveals blue-&-white version of the G3 Power Mac, the first computer to ship with FireWire ports. Steve Jobs named CEO. *July 21:* iBook announced. Wireless AirPort takes off.
2000 – *January:* Apple previews Mac OS X at Macworld Expo. iTools launched. *July 19:* G4 Cube announced to critical acclaim, but sales "don't meet expectations". *September:* Mac OS X Public Beta released, with 100,000 copies sold.
2001 – Apple will be the "digital hub" of the future wired world, announces Jobs. *January:* Apple announces the SuperDrive, which will read and write both DVDs and CDs. *March 24:* Apple's next-generation Mac OS X launched. Wall Street Journal calls Apple a "safe" investment. MW

Apple released a limited-edition Mac to mark its 20th anniversary.

Palm door

Along with the m500, the 33MHz m505 (right) is the first Palm to support the Secure Data/Multimedia (SD/M) card (below). The new SD standard does away with the old Palm serial interface. Its new method of connecting to computers eliminates the need for Macintosh users to buy the MacConnect Kit to connect a HotSync Cradle to the Mac.

Palm has grip on future

Palm has released a new entry-level m105 model and a new 500 series – as well as hinting at future plans for its platform.

The 33MHz m500 and m505 are the first Palms to support the Secure Data/Multimedia (SD/M) card – a new connectivity standard – as well as being USB-ready, allowing easy connectivity to Macs. The m500 costs £329, runs Palm OS 4.0 and has a monochromatic display. The m505 has a 16-bit colour screen, and costs £399. Both ship with 8MB RAM and 4MB ROM.

Both have two expansion slots based on the SD/M-card standard – similar to SmartMedia and Sony's Memory Stick. It can store up to 64MB – with 256MB versions expected later this year – and peripherals can be built to fit the specification, which is hot pluggable.

SD/M also supports built-in protection for copyrighted information, including MP3 files.

Palm has promised to revamp its devices' built-in sound support. Forthcoming add-ons based on SD/M include clip-on GSM phones and Bluetooth connectivity. Palm plans to implement the new expansion standard across its range over the next year, though the m105 retains the older, serial standard.

Phone home

On Palm OS 4.0 a single click on a phone number in the address triggers a call. It also offers a common interface for alarms, time-zone support and enhanced security features.

The handhelds all ship with MGI PhotoSuite, DataViz's Documents to Go, AOL for Palm OS, AvantGo, Infinity Softworks' PowerOne personal calendar, and Palm Reader for electronic books.

The m105 costs £144, and comes with a HotSync cradle, although Mac users must still pay an extra £24.95 for a kit to connect this up to their Mac. This is no longer the case with the m500/505 handhelds. If used in conjunction with Palm's Internet Connectivity Kit and a compatible mobile phone, the m105 can connect to the Internet and check email. Any mobile with an IRdA port – or connectivity cable – combined with a new Palm can act as a wireless modem.

All three devices understand the Short Messaging Service (SMS) protocol, so text messages can be sent and received from pagers and mobiles, if used with a compatible mobile phone.

The m105 has 8MB RAM – compared to the 2MB installed in the m100. It runs Palm OS 3.5.

Palm expects to launch Palm OS 5 next year, and hinted at its intention to use ARM microprocessors in future models. **MW**

Jonny Evans

Game on for Palms

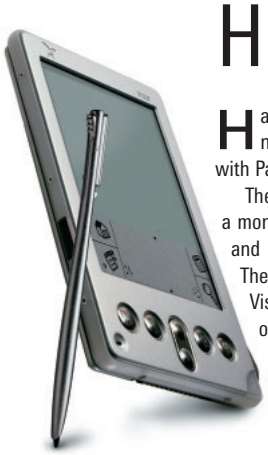
The first SD-based module to ship, the PalmPak Games Card (right), features ten games for m500 and m505 users. It costs $29.95 in the US, and includes classic titles such as SimCity, Solitaire, Chess, Checkers, Backgammon, Blackjack and Vegas Slots. UK pricing was unavailable at press time.

Palm has also acquired Peanutpress.com, an eBook publisher and distributor of literature for handhelds. The move makes Palm the top distributor of PDA eBooks.

Peanutpress.com will be renamed Palm Digital Media, while Peanutpress' Peanut Reader reader will be known as Palm Reader.

Kodak's £79 PalmPix camera (right) is pegged for release in May. The module will be based on the SD/M-card interface, and has a three-position lens.

Handspring has the Edge



Handspring has launched the Visor Edge (left), a new PDA (personal digital assistant) that comes with Palm OS 3.5.2 installed.

The Visor Edge comes equipped with 8MB of RAM, a monochrome display capable of 16 shades of grey, and an integrated lithium-ion rechargeable battery. The Visor Edge is similar to its predecessor, the Visor Platinum, using the DragonBall VZ processor operating at 33MHz.

Available in three metallic colours – silver, blue and red – the £329 Visor Edge Handspring boasts two enhanced key-software functions: Fast Lookup and Silent Alarm. The former accesses information rapidly, using application buttons, while the latter is a visual reminder of appointments, for when audible alarms are inappropriate.

Other features include USB support, Mac OS 8.x compatibility out-of-the-box and a Springboard expansion slot. Handspring expects Visor Edge expansion products to appear "in the coming months". International language versions of the PDA should be available beginning in April.

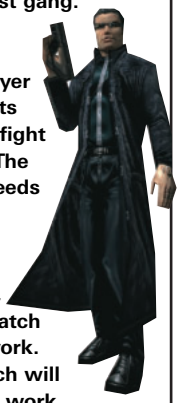
For a review of the Visor Edge, go to page 60.

Handspring, 0207 309 0134. **MW**

Virtual Game Station gets Sony's backing

Deus Ex for many

Deus Ex fans can finally get a multiplayer version of the game, with the release of a patch for the futuristic shoot-em-up. The game features Agent JC Denton on a mission to infiltrate a terrorist gang.



The 35MB multiplayer patch lets gamers fight online. The game needs a clean install before running, or the patch won't work. The patch will also not work with version 1.0.1.

Sony in on PS emulator

After a two-year tussle in the US courts, Sony Computer Entertainment America (SCEA) and Connectix have announced a "joint technology agreement" that ends their Virtual Game Station (VGS) war.

The struggle was fought to decide the fate of Connectix's PlayStation (PS) emulator that enables PS titles – such as Driver (above) – to play on Macs and PCs. Connectix will stop selling VGS on June 30.

The two companies will work together on emulation technology, agreeing to "proceed to define a series of development initiatives in the area of advanced emulation-solutions". All future emulation work by Connectix will fall under the joint agreement.

Roy McDonald, president of Connectix, mentioned development tools, consumer products and enterprise solutions as areas in which the two companies will work. He also said the agreement has implications beyond the PS. "The agreement extends to a wide range of computing platforms," he said.

VGS was launched for the Mac in January 1999, and was later ported to Windows systems. Connectix managed to retain the advantage throughout the case, following a court decision (which Sony could not overturn) that allowed it to continue to sell the software, .

"We consider the situation around computer entertainment is changing," said Yoshiko Furusawa, director of corporate communications at Sony Computer Entertainment International (SCEI), explaining the decision to team up with Connectix. He added: "In the current situation, we thought it would be better for both companies to collaborate on research and development related to emulation technology."

Oddly, Sony's court disputes with Connectix concerning the legal validity of Virtual Game Station may have contributed to the new agreement.

McDonald said: "In the discovery process, Sony learned more about the way our emulation technology works than they would have been able to otherwise. **MW**

Martyn Williams and Peter Cohen

Marathon lasts longer

Created over three years by a team of independent developers, Marathon: Rubicon was released on March 17.

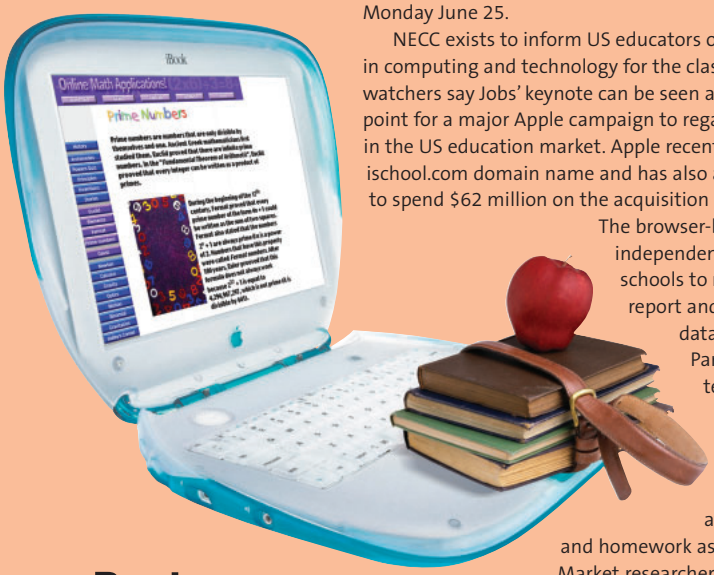
The Alien shoot-'em-up is available as three different downloads – Rubicon Standard, Rubicon AO, and Mix 'n Match. Standard requires that a copy of Marathon Infinity is installed, and AO is a fully functioning stand-alone version of the game based on the Aleph One OpenGL engine. Mix 'n Match, meanwhile, consists of individual files for small bandwidth downloads. Rubicon offers 12 new characters, 360 new textures, fresh scenarios, weapons and solo levels for devoted Marathon gamers.

Texture artist and map-maker for Bungie's original Marathon Infinity, Randy Reddig, said: "The visuals are the nicest I've ever seen come out of Marathon. If you've played any Marathon game, Rubicon will re-ignite your love for the series." **MW**

Classic game environment

Hardcore Marathon gamers get to battle a slave-trading alien race for a retro slice of sci-fi annihilation.

Jobs leads education charge



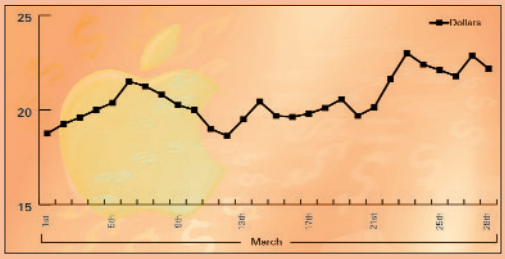
Apple CEO Steve Jobs will deliver the keynote speech at the 22nd US Annual National Educational Computing Conference (NECC) in Chicago on Monday June 25.

NECC exists to inform US educators on developments in computing and technology for the classroom. Industry watchers say Jobs' keynote can be seen as the starting point for a major Apple campaign to regain market share in the US education market. Apple recently registered the ischool.com domain name and has also announced plans to spend $62 million on the acquisition of PowerSchool.

The browser-based, platform-independent service enables schools to record, access, report and manage student data in real-time. Parents, students, teachers and administrators can share information about grades, attendance records and homework assignments.

Market researcher IDC claims Apple has lost top spot in the US education market to Windows maker Dell, which recently hired former Apple salespeople. IDC's PC Tracker report quoted Dell as having a 34.3 per cent share of the education market, compared to Apple's 19 per cent.

Jobs said the loss was Apple's fault, and stemmed from the company "shooting itself in the foot" when it carried out a sales force reorganization earlier this year. With some new executives on board, Apple hopes to recover its number one position, Jobs added.



NECC representative Barbara Hewick said: "Mr Jobs has never spoken to NECC, and we're very excited to have him speak to our 13,000 attendees."

Apple UK won three awards at January's London-based education show, BETT 2001, for its iBook and AirPort products. AirPort was voted Best ICT Hardware in Secondary Schools, and both iBook and AirPort won Innovation of the Year awards.

Apple's PowerSchool acquisition is seen as a signal that Apple is bidding to become the leading provider of Web-based student information systems. The PowerSchool student-information system has already been selected by 2,000 schools in the US.

"Apple has a legacy of helping teachers teach and students learn. We are now expanding that mission to include helping schools run more effectively," said Jobs.

Jobs went on to welcome PowerSchool's 160 "talented employees" to Apple, adding he hoped they would help Apple become the leading Web-based education provider "nationwide". He made no mention of Apple's PowerSchool-based education plans outside of the US.

Apple will acquire PowerSchool for $62 million in Apple stock. The closing of the deal is subject to regulatory approvals and approval from PowerSchool shareholders. **MW**

Business briefs

- **Apple board member and Oracle CEO Larry Ellison faces court action – over insider-trading allegations involving $900 million in shares.**
- **Macromedia completed its merger with Allaire. Rob Burgess, chairman and CEO of Macromedia, will be chairman and CEO of the merged company.**
- **Corel expects its first-quarter revenues to be $32.5 million, compared with a net loss of $12.4 million for the same period last year.**
- **Aladdin Systems Holdings ended its fourth quarter 2001 with a net income of $217,425. This compares to the $63,261 for the same period last year.**
- **Palm is to cut its workforce by 13 per cent, and plans further cutbacks in response to expected fourth-quarter losses.**
- **Adaptec has warned that its profits for the quarter will fall short by 15 per cent due to restructuring costs.**

Adobe flush, as Warnock retires

Adobe Systems enjoyed another successful financial quarter, but said goodbye to co-founder and chief technology officer, John Warnock (pictured right).

Warnock founded Adobe with Charles Geschke in 1982. He will remain as chairman of Adobe's board of directors, but has retired from his other posts.

"I've had a wonderful career at Adobe and I am proud of the products and technology the people of Adobe have created. I know they will continue to do amazing things," Warnock said.

Warnock had already scaled back his involvement in the day-to-day running of Adobe, and, in December last year, handed over the chief executive position to Bruce Chizen, who remains Adobe's president and CEO.

In other news, Adobe achieved revenues of $329 million in the first quarter of fiscal 2001, compared to $282.2 million for the first quarter of 2000, and $355.2 million for the fourth quarter of 2000. This is a 17 per cent year-on-year revenue growth, with application-revenue growth of 20 per cent. This earnings-per-share figure is ahead of the $0.28 expected by analysts polled by First Call/Thomson Financial. The analysts had lowered their estimate in January after Adobe warned of slowing sales, particularly in the US.

Citing the "challenging and uncertain economic environment", Adobe said that it would lower its growth target for the second quarter to 15 per cent year-on-year, and added it would not provide revenue targets for the second half.

"Although we don't currently see a major slowdown in our business in Europe and Japan, the potential for a global slowdown causes us to defer providing updated second-half targets until we have better visibility," said Chizen. MW

Real-time video editing hits Mac

Matrox has announced the RTMac real-time editing card for Power Mac G4s with Final Cut Pro 2. The card offers professional video-editing for £699, and was jointly developed by Matrox and Apple.

Matrox's built-in Flex 3D architecture exploits the graphics performance of Matrox's accelerator technology to deliver broadcast-quality effects and 32-bit, uncompressed, animated graphics in a dual-stream, native digital video-editing environment.

The card can work with three layers of video and graphics in real time, and creates effects instantly with no rendering. Pixélan Software's OrganicFX Lite is bundled with RTMac to provide a selection of transitions.

The card will handle editing, compositing and special effects in real time, and will capture and output analogue video that can then be edited.

The RTMac card allows source material from analogue devices to be digitized for use in digital-video editing projects. Finished projects can be recorded to videotape in real time for distribution. Full resolution viewing on a PAL or NTSC video monitor is supported without the need to connect a digital-video device to the Power Mac G4. The card also supports dual-screen editing.

It requires a 400MHz or faster Power Mac G4, 256MB of RAM, a free PCI slot, Mac OS 9.1 and Final Cut Pro version 2.0. It also a needs a disk drive capable of two 25MHz data transfer streams.

Matrox, 01753 665 577

Quick edit
RTMac allows "real-time" video editing, and can produce broadcast-quality effects for PAL and NTSC video.

NEC ships A4-sized projector

NEC has launched the small, lightweight MultiSync LT150 video projector. It measures 238-x-196-x-53mm and weighs 1.5kg (3.3lbs). The £4,095 LT150's specs include an XGA (Extended Graphics Array) resolution of 800-x-600 pixels, a brightness of 800 ANSI lumens and an 800:1 contrast ratio.

It includes Presentation Viewer, which will accept presentations from a CompactFlash card. Controls for keystone correction allow the projection of images from any position. The LT150 reads S-Video, video and DVD signals.

NEC, 020 8993 8111

Cashbook Manager cheques in

Spend thrift
Cashbook Manager is aimed at small businesses and records receipts, sales, purchases and contacts.

Guildsoft has launched Cashbook Manager, a bookkeeping solution for small businesses. The app works with UK currency, and costs £40.

It's also available in a basic package called the Basic Cashbook. This records details such as recurring spending, receipts, and incomes for multiple bank accounts and companies.

£20 add-on packages that extend the capabilities of the Basic Cashbook – including Office Package, Sales and Purchasing Packages and a Contacts Package – are available.

The Office Package links reports directly from Cashbook Manager to Microsoft Excel and Microsoft Word.

Guildsoft, 01752 895 100

Trade for a ticker

Trade Assist offers real-time stock quotes and a stock ticker. It will log transactions for taxation purposes, supports international markets and multiple stock portfolios. Full registration costs $24.95.

Essentrix, www.essentrix.com/tradeassist

Musical Pulse

Pulse 424 is a three-piece speaker system equipped with ported satellites and a headphone jack. The £43 Pulse 424 has a 35Hz-20KHz frequency response and a 20W subwoofer.

Labtec, 01256 386 000

Mac-to-mobile syncing

SIM Express 1.1.2 edits information held in some mobile phones. It can also import telephone numbers to or from the mobile to other applications – such as Microsoft Entourage. It works with modem or data-card-equipped mobile phones. Full registration costs $19.

ID Express, www.idexpress.fi/en

Email security

Network Associates is shipping PGP Freeware. The application encrypts emails, and offers "seamless" integration with email applications. It can encrypt emails for despatch to multiple recipients.

Network Associates, www.nai.com

PalmPix ships for m100

Kodak has launched a new colour PalmPix digital camera. The camera can be used only with Palm's m100. Photos can be transmitted by infrared to users, and downloaded to a Mac using the Palm m100 cradle. It costs £79.99 and captures full-colour pictures.

Kodak, 08702430270.

continues page 40

Apple updates

The **AirPort 1.3** update adds functions that some ISPs need, including WEP (Wired Equivalent Privacy) and AppleScript support. It also improves a BaseStation's performance when several units are close together.

The **iMovie 2.0.3** update will export to iDVD and adds stability and performance enhancements.

The **Z-DVD-ROM** firmware improves the audio-extraction performance of the DVD-ROM drive installed in the iMac DV+, iMac DV SE and Power Macintosh G4 Cubes.

URL Access 2.3 improves access to secure sites.

Macintosh Manager 1.4 manages Mac OS client computers running System 7.6.1 or later. The update fixes certain bugs and adds functionality.

Links to recent Apple updates are available at www.macworld.co.uk/updates. Apple does not allow third-parties, including *Macworld*, to carry its software upgrades on cover CDs.

Third-party updates

Retrospect 4.3

This enhances Dantz's back-up solution. The company has released a public beta of Retrospect Client for OS X, but plans to launch a fully-compatible version have been delayed by Apple's decision not to ship all the software components Retrospect requires with version 1 of Mac OS X (see Q&A, page 145).

ConflictCatcher 8.0.8

This update is Mac OS 9.1 compatible, and adds sets, links, and Clean-Install System Merge information.

StuffIt Deluxe 6.0.1

This adds OS X support to Aladdin's compression utility, it also improves Entourage and anti-virus support.

Flash 5.0a

This update provides improved reliability and stability for the Flash 5 Macintosh authoring environment. It also prevents some crashes.

continues page 42

Landmark image

The British Tourist Authority (BTA) has launched www.britainonview.com, an online image library. It contains more than 23,000 photographs selected from an archive of around 200,000 held by the BTA. The service is aimed at tourism-industry professionals. The images are available at negotiable rates.

Britainonview.com is searchable by category, place, county or keyword. Pictures can also be ordered online.

British Tourist Authority, 020 7836 6608

Xerox printers take strain

Xerox has launched three fast heavy-workload printers – the Phaser 2135, DocuPrint N4525 and DocuColor 2006. The Phaser 2135N is an A3 colour laser printer. It has a duty cycle of 83,000 pages per month, and costs from £4,852. At a resolution of 1,200dpi the printer can reach speeds of 26ppm. It has a built-in 500MHz processor.

The 2135 can print booklets, with automatic two-sided printing available in the 2135 DT and 2135 DX – which cost £6,314 and £7,416 respectively. The basic configuration features 10/100BaseT ethernet and 128MB of RAM. The higher-end models offer internal 5GB hard drives.

Xerox has also launched the A3 oversize DocuColor 2006. This £10,702 combination colour printer and copier offers 6ppm in colour and 26ppm in black-&-white. It supports 8-bit colour depth. The 2006 has an input capacity of 1,400 sheets and a 10-bin stacker. It also supports PDF-direct printing, which lets users print without opening documents. It has an Automatic Document Feeder, and offers up to 512MB of RAM, a 6GB hard drive and a 266MHz processor. The printer comes with 10/100BaseT ethernet.

The £2,651 DocuPrint N4525 is a black-&-white printer outputs A3 45ppm at 1,200dpi. It can print in duplex and hosts an on-board 233MHz processor. It ships with two 500-sheet paper trays.

Xerox, 0800 454 197

Xero-ing in

The Xerox Phaser 2135N (above) DocuPrint N4525 (right) heavy-workload printers come with 10/100BaseT ethernet and inbuilt processors. The 2135N can print up to 83,000 pages a month, according to the company.

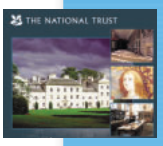
Mouse a Speedy Gonzales

Microsoft has introduced its Trackball Explorer optical mouse. The £43 mouse has an optical sensor that tracks movement 2,000 times per second. The company claims that users move mice at an average 22-inches per second, but that its new device can handle speeds up to 36-inches per second. The mouse has a large ball to control movement. It also has a ribbed wheel for scrolling and zooming direct from the trackball, rather than using on-screen tool bars. The USB-based trackball also has five controllable buttons. The Trackball Explorer needs a USB-enabled Mac.

Microsoft, 0870 601 0100

CDs & books

Trust our heritage



The National Trust's Timeline: An Interactive Tour of England's Finest Country Houses CD contains "in-depth, richly illustrated" tours through some of the Trust's most precious houses. It includes 360-degree panoramic views, full-motion video, images and historical detail. It costs £25.
Thames and Hudson, 01252 541 602

Play the percentages

Sherston Software has added Fraction Games, Percentage Games and Decimal Games to its Making Sense of Maths series. The games complement Sherston's Display It Yourself teaching CDs. Each features five games designed to be fun and to teach numeracy up to national standards. Aimed at children between 7-13 years, each CD-ROM costs £32.
Sherston Software, 01666 843 200

Flashy guide

New from IDG Books comes *The Flash 5 Bible* (£34.99).

This book covers all elements of the application including producing complex graphics for low-bandwidth connections. It comes with a CD-ROM containing software, add-ons, plug-ins and Flash examples.

All IDG titles can be bought at up to 30 per cent off from *Macworld Online* (www.macworld.co.uk/readeroffers) or by phone.
Macworld, 020 7831 9252

Designer Flash edition

Pearson Education is introducing *Flash Web Design: The 5.0 Remix* this month. The £34.99 title is the updated version of *The Designers Guide to Flash*, and contains a variety of information aimed at the professional Flash 5.0 designer.
Pearson Education, 020 7447 2000

Epson's spring clean-up

GT races
Epson's EPL-5800L printer (below) can print at 10ppm. The GT-30000 scanner (right) can scan 30ppm at 300dpi.

Epson has launched two new products: the EPL-5800L monochrome laser printer and the GT-30000 scanner. The USB £195 EPL-5800L offers print speeds of up to 10 pages per minute (ppm). It uses Epson's RiTech technology to produce crisp, sharp, text and Epson's Microgrey 1200 that prints different tones of black, according to the company.

Features include Epson's Status Monitor which notes the amount of toner and paper left. An A4 150-sheet paper feed tray comes as standard, and a manual feed tray is also supplied for printing on envelopes or cards. An optional 500-sheet paper cassette is available.

The GT-30000 scanner has an automatic document feeder, networking capabilities and auto-document sizing. It scans up to 30ppm at 300dpi in monochrome and 15ppm in full colour, and features 36-bit scanning. The scanner is compatible with TWAIN and OCR software. The £3,319 scanner is compatible with Epson's Network Image Express, which does not require a Mac to connect the scanner to server.

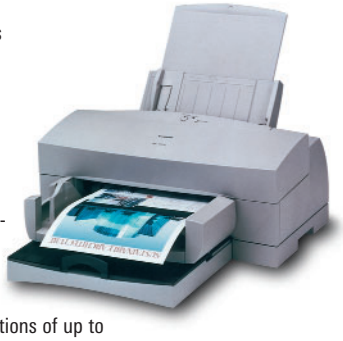
Epson, 0800 220 546

Canon bubble double

Wide boy
Canon's large-format BJ-W9000 printer (below) and desktop BJC-8500 (right).

Canon has launched two bubble-jet printers – the BJ-W9000 and A3 BJC-8500. The high-speed, high-resolution large-format BJ-W9000 inkjet printer accommodates paper up to B0 size (1,000-x-1,414mm) at 1,200-x-600dpi.

The BJ-W9000 has an "enhanced ink-delivery system" using a 256-nozzle print-head with built-in colour-sequence correction ensuring that lighter inks penetrate the media first in both directions of the carriage. It costs £8,995.



The BJC-8500 is a photo-quality A3 proofing-device, reaching resolutions of up to 1,200-x-1,200dpi. Costing £1,850, it uses MicroFine Droplet Technology to ensure that ink is ejected precisely on to the paper.

Canon, 0800 035 3535

Sharp colour for printer pair

Sharp is now shipping the AJ-1800 and AJ-2100 inkjet printers, with USB connectivity for Macs.

The colour AJ-1800 costs £73. It offers print speeds of up to 10 pages per minute (ppm) in mono and 6ppm in colour at 1,200dpi.

The £164 AJ-2100 uses a six-colour cartridge system, and offers print speeds of up to 8ppm in mono and colour at a resolution of 1,200dpi, according to the company. Each colour ink has its own cartridge, so they can be replaced individually. Both printers have 150-sheet enclosed paper-trays, and ship with a one-year exchange warranty.
Sharp, 0990 274 277

continues page 44

Microtek's scanner move

Microtek has introduced the ScanMaker 5700. This £340 scanner offers FireWire and USB connectivity, and includes single-touch optical character-recognition features, with the ability to scan to Web, copy and email image data. The 5700 has a 1,200-x-2,400dpi resolution and 42-bit colour recognition. The scanner handles reflective scans up to 216-x-297mm and transparency scans up to 127-x-101.6mm.

Microtek, 01908 317797

Remote DTP

Technodesign's TCP/IP XT, an XTension module for Quark XPress, remotely controls the application using TCP/IP – the same networking protocol the Internet uses. The $1,749 plug-in allows XPress to be controlled by virtually any computer platform, so it's possible to send commands that open XPress templates and then call text and pictures directly from a database.

Technodesign, www.techno-design.com.

Desktop decoration

Webshots Desktop 2.0 for Mac will place an image on the Mac desktop automatically. The company has a number of different images available in numerous categories, including nature and travel. This free release adds image importing and a Web toolbar.

Webshots, www.webshots.com

Breath of fresh air

HealthEngage-Asthma is a record-keeping solution that helps chronic patients track their attacks and intake of medication. It's designed to collect, and chart health data, and uses Mac OS Runtime for Java. Future versions of HealthEngage will include Chronic Fatigue Syndrome and Weight Loss/Fitness management. The full application costs $39.99.

HealthEngage, www.healthengage.com

HP DeskJets in frame

Hewlett-Packard has announced its photo-quality inkjet printers, the DeskJet 990C M, 980cxi and 959c. The 990C M inkjet printer features optical paper-sensing, which automatically detects the type of paper in the printer and adjusts the print settings accordingly; the settings can also be adjusted manually.

The 990C M is HP's professional inkjet printer. It has a silver-metallic body and reaches print speeds of up to 17 pages per minute (ppm) in black-&-white and 17ppm in colour, according to the company. It also has an infrared port for communicating with Macs such as the Titanium PowerBook G4. The machine offers automatic two-sided printing and costs £237.

Jets set
The DeskJet 980cxi (below) has an on-board 96MHz processor and can print 12ppm in colour. The 990C M offers two-sided printing and can print at 17ppm in colour.

The £195 980cxi has a built-in 96MHz processor, and integrates HP's high-performance Print Architecture. It connects via USB, and reaches up to 15ppm in black-&-white and 12ppm in colour. Like the 990C M, the 980cxi features automatic paper sensing and automatic two-sided printing.

The £152 USB DeskJet 959c is a photo-quality printer capable of resolutions of 2,400-x-1,200dpi. It has both a 100-sheet A4 paper tray and a built-in 10-x-15cm photo-paper tray. The 959c reaches black-&-white print speeds of 11ppm, and prints colour pages at 8.5ppm.

Hewlett-Packard, 08705 474 747

Brother all-in-ones ship

Brother has launched three colour inkjet printers, the MFC-830, MFC-840 and the MFC-860. The MFC-830 costs £349 and has a resolution of 1,200-x-1,200dpi. It includes colour scanning and a scan-to-email function. The MFC-830 prints at speeds of up to 10 pages per minute (ppm) in colour.

The £419 MFC-840 has all the print and fax functions of the MFC-830. It also has a Photocapture Centre function that prints straight from SmartMedia or CompactFlash cards.

The £599 MFC-860 is a digital colour-copier, colour fax, and colour scanner. It has a colour print speed of up to 10ppm in draft mode, and can reproduce images at a resolution of 1,200-x-1,200dpi. The printer can resize documents by between 25 and 400 per cent.

Brother, 0845 6060 626

Canon's digital-camera capture

Canon has announced three digital cameras – the Digital IXUS 300, and the PowerShot A10 and A20.

The IXUS 300 is a compact professional device. It has an LCD screen and offers a maximum resolution of 1,600-x-1,200 pixels. The £600 camera has a 3x zoom-lens and a built-in light-meter. It has an internal flash and includes an 8MB CompactFlash card. Canon has also added the A10 and A20 models to its PowerShot range. Both feature a 3x zoom-lens. The A10 and the £350 A20 have 1.3- and 2.1-megapixel sensors respectively.

The £300 PowerShot A10 can capture resolutions up to 1,280-x-960 pixels; the A20 takes this further with 1,688-x-1,248 pixels. Both cameras feature Canon's AiAF (Artificial intelligence Auto Focus) technology, which compensates for light differences.

Canon, 0800 616 417

Zoom in
Canon's A10 (above, top), A20 (left) and IXUS 300 (above, bottom) feature 3x zoom-lenses.

David Fanning

If software giants aren't careful, OS X could force users to their lesser-known rivals

David and Goliath

We have just entered the weirdest four months in Apple's history – where the whole software world could be turned on its head. Giants could be toppled, and underdogs could win both massive support and the success and riches that go with it.

The reason is that we've entered the period between the release of Mac OS X, and the July Macworld Expo where the major software companies are expected to ship their first OS X titles. The intervening months are a once-in-a-lifetime opportunity for aspiring software developers to grab some users that want OS X software now.

If you haven't already sampled the delights of OS X – and there are plenty of reasons not to – you won't have had a chance to get a real feel for it. There are plenty of issues stopping people upgrading – I had plenty of problems in my first week of X. But once they were sorted out, I quickly got addicted to the new features. It's like using a scrolling mouse – after a while it's hell to go back to a normal mouse.

After spending a week with OS X at home, I got fed up with using 9 at work. It was like going back to System 7; things I got used to just weren't there. I kept going to the Dock to open applications, and when the browser was mulling over some Java on a slow connection, I couldn't do anything else at the same time. It very quickly got frustrating, so as soon as possible I loaded OS X on my work machine. Yes, my work machine. In the middle of press week, too – OS 9 was simply slowing me down too much.

Of course, the main problem with X is that not every piece of software is ready to take advantage of its modern features. You can still use the old stuff, but when it opens with its old-fashioned platinum-grey windows, it's so depressing. You just hate it because it's messing up your beautiful interface. Your once lovely software is now a blight on your computer, because it doesn't have the traffic lights and the glowing Aqua buttons. It's enough to make you change your software.

Of course, that is my point. Rather than have some ugly classic applications spoiling your view, you could always change applications. Microsoft, Adobe, Macromedia and others better watch out. There was no reason to use other word-processing or image-editing apps previously. Now there is.

A case in point is Microsoft Office 2001. I am addicted to its functionality, and won't use anything else. The Entourage email application that it comes with runs my life. I know some of you might be shocked at such obvious Microsoft admiration, but I don't care, so long as it makes good products and doesn't make me use its system software. The point is, now that Office 2001 doesn't run natively in OS X, I'm looking at other options. To help me make up my mind, Apple has released a free version of AppleWorks for OS X. Previously I had regarded AppleWorks as a poor cousin to the mighty Office. Now I'm thinking, hey, its only typing and a little spreadsheet work, why not give it a try?

Microsoft has done a lot to get to where it is today with Internet Explorer. Again, I'm an enthusiastic user. But the version that ships with OS X is beta, and not as quick as I'd like. All of a sudden I'm using OmniWeb. What? I hear you ask. Until yesterday I'd never heard of The Omni Group. Today it's looking like it could be the provider of my latest Web browser. The Omni Group would never have been able to so easily curry my affection two weeks ago. It turns out the people at Omni Group make some other useful software too: OmniGraffle is a fine tool for Org charts, for example.

So with in a week I've stopped using the charting in Word, I am about to leave Explorer behind – at least until the release version – and I'm considering migrating to AppleWorks. All because I love OS X.

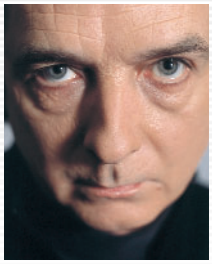
One of the key applications for many readers will be QuarkXPress. The very foundation of the publishing industry is nowhere near close to releasing its OS X version. I know loads of people won't even consider OS X until XPress learns to act like its initial letter. However, I suspect many people can't wait a year or more for Quark to get its act together. They will upgrade to X without it, then grow weary of a piece of software that is so old fashioned. If Adobe is smart, once an OS X version of InDesign is ready, it could make a killing. Heavily discounted side-grades could snatch a big slice of Quark country. And, if Adobe doesn't get *its* skates on, it could find the Omni Group developing OmniPhoto.

It's going to be an interesting few months, and there's bound to be a shift in market share of applications. If you are a developer of software, you should be busy right now. If you're to slow, you might end up with more free time than you'd like. MW

"After spending a week with Mac OS X at home, I got fed up with using 9 at work – it was like going back to System 7."

Michael Prochak

It could be wise to wait for the first upgrade to Mac OS X



Are you local?

The straw lines are down and the locals are nervous. Where I live, in East Sussex, the landed PR spit wants everyone to believe that the world is a dark, sinister and totally frightening place where democracy should be put on hold. It's just too darn unsympathetic and insensitive to mention things like years of subsidies, and that we forced the rest of Europe to stop using foot-&-mouth vaccines.

But what do I know? This full-bore, farm-centric indulgence is not an idle thing. It requires a deeper commitment and an element of madness that no other industry or commercial sector can ever hope to muster. I mean think about it... can you imagine all those thousands of businesses worldwide affected by assorted virulent computer viruses claiming government compensation?

Incidentally, even though I've lived in East Sussex for nearly 15 years, I don't qualify as "local" in the *League of Gentlemen* sense. Which, in the long run, is probably a good thing. When I moved down here, I was told that a particularly nasty neighbouring family had lived in this village for over 400 years and never considered anyone else "local"... even if they managed to live here their entire life. My comment was something to the effect that you could either view that sort of thing as a wonderful example of preserving historical tradition... or the ultimate in in-bred, pig-ignorant lethargy. But these things happen, and with the recent launch of Mac OS X, an out-break of "boot-and-mouse" disquietude could up the fear-and-loathing among the more traditional Mac locals.

Depending on your point of view, OS X is either one small step back or one giant leap for Mac-kind. But, whatever your opinion, what we all have to contend with is an operating system that is new to everyone, with lots to learn and get used to. On top of that, despite the hype, Mac OS X is truly a 1.0 level product. It's bound to have stuff missing, and it's guaranteed to have bugs. Anyone using it before it hits 10.1 will be on the metaphorical "bleeding edge". And that could be painful. If you like things simple, you're probably not yet ready for OS X in its current incarnation. And more importantly, it's probably not ready for you either.

Don't get me wrong here. In many ways, Mac OS X is the most promising operating system Apple has ever released. But getting at that promise, like every other major OS leap, will take some time and effort. No matter who you are, Mac OS X's final release is radically different from anything you've ever seen. And from the traditional Mac-local's perspective, it's certainly not the Mac OS any more. Fortunately, it's also not just another version of OpenStep from NeXT either. No, kids, its an amalgamation... a compromise of both with a set of new graphical user-interface elements and concepts called Aqua. So, despite the water reference, not even veteran Mac-users are going to be ready to jump right into OS X and start swimming. Perhaps for the first time, there's a relatively steep learning curve, and there's practically no traditional way of getting round it.

OK, despite comments from Andy Hertzfield's – a key member of the original Mac-devolpment team the GUI thing in general has been stagnating for years. Apple got the GUI right in 1984 with a desktop metaphor that dramatically improved on the Xerox Palo Alto work, and really had to make only some relatively minor improvements over the years. Microsoft has still not caught up, although Uncle Bill now wants back on the bandwagon with Windows XP.

Apple wanted to make OS X a leap forward in usability, without making the locals nervous. Fortunately, the Mac hasn't been around for 400 years – so even dyed-in-the-wool Mac-locals can get used to all this if they want to. Don't put down straw lines just yet. It'll just take time and a bit of open-minded effort. If we're perfectly honest with ourselves, we'd all have to admit that even the older Mac OS versions were never 100 per cent intuitive out of the box. Maybe it didn't take a lot of effort, but we all had to "learn" the Mac OS, and its wonderful shining achievement was that what we learned quickly made sense. And, once we learned one application, we had a head start on every other application thanks to consistency in the GUI.

Fortunately, that brilliant idea of consistency remains in Mac OS X. It's just that with the advances in OS X, we've also been lumbered with some evil Unix-isms that are downright ugly. But, hey... we can deal with it. Two steps forward, one step back...it's just Apple's twisted version of progress. And whether you're a local or not, I suppose it's as clever a way as any of preserving historical tradition without being accused of lapsing into the ultimate in in-bred, pig-ignorant lethargy. MW

"Depending on your point of view, OS X is either one small step back, or one giant leap for Mac-kind."

Macworld Rating

★★★★★/9.0-10.0 = OUTSTANDING ★★★★/7.0-8.9 = VERY GOOD ★★★/5.0-6.9 = GOOD ★★/3.0-4.9 = FLAWED ★/0-2.9 = UNACCEPTABLE

High-end Macintosh professional desktop systems

Power Mac G4 (733MHz SuperDrive)

Manufacturer: Apple (0800 039 1010) www.apple.com/uk
Pros: DVD-R/CD-RW SuperDrive combo; fastest PowerPC processor available; 4x AGP; four PCI slots; 256MB RAM; 60GB hard drive; easy-upgrade design.
Cons: Single processor only.
Price: £2,499 (prices exclude VAT)
Star Rating: ★★★★/8.8

Power Mac G4 (733MHz CD-RW)

Pros: Fastest PowerPC processor available; 4x AGP; four PCI slots; CD-RW; 256MB RAM; 60GB hard drive; easy-upgrade design.
Cons: Single-processor only.
Price: £2,099
Star Rating: ★★★★/8.6

Power Mac G4 (533MHz DP)

Pros: Two G4 processors mean quicker Photoshop and OS X general use; 4x AGP; four PCI slots; easy-upgrade design.
Cons: Multiprocessing speed gains limited to several graphics programs.
Price: £2,499 (prices exclude VAT)
Star Rating: ★★★★/8.8

Apple claims that, with the bundled iDVD software, the SuperDrive writes DVD-R discs at twice the length of the source material. This means that a 15-minute iMovie on DVD would take 30 minutes to burn.

However, in our tests, it took four times as long as the source material. Although disappointing, this is still faster than pre-iDVD 25-times-source-material DVD-R burning speeds.

iDVD (★★★★/8.5; reviewed April 2001) will author DVDs up to only an hour in length. While this doesn't seem very long, it should be plenty for home movies and even corporate videos. Can you imagine over an hour of home movies?

Just where is Apple's high ground these days? One would expect it, as usual, to be at the highest-rated Power Mac G4 (the 733MHz model), but intensive Macworld Lab tests suggest that many graphics professionals would be better-off buying the dual-processor 533MHz model.

Apple surprised everyone when it cut its multiprocessing (MP) options from two-thirds of the previous Power Mac range (450MHz and 500MHz systems) to just one sixth (533MHz). Although a bit ahead of the game when it came to optimized applications, MP definitely looked like the way forward – due to the MP-friendly architecture of Mac OS X. So when Apple released just one MP system in January, jaws dropped faster than Cube sales.

Macworld readers have implored us to determine which of these Power Macs is the fastest. First, let's see what each system offers.

SuperDrive or CD-RW

Apple has adjusted its high-end Power Mac G4 range by splitting the 733MHz system into SuperDrive and CD-RW models. This makes the fastest-ever Mac much more flexible: customers who don't need to author DVD-R discs can save £400 (£470 inc. VAT) and still hit the high-end of megahertz speeds.

If you want to burn DVD-R discs, you need the 733MHz model with its Pioneer-designed SuperDrive. This combo-drive can read, write and rewrite CDs – just like the other CD-RW drives that ship with the other Power Macs and two of the new iMacs – as well as reading and writing DVD-ROM discs and, most significantly, DVD-R discs.

With Apple's free iDVD software, the SuperDrive allows users to author DVD-R discs that will play in consumer-level DVD players. This is a perfect fit with Apple's bundled iMovie 2 software. The ability to output and distribute your home movies on DVD puts the Mac at the forefront of today's increasingly digital world. DVD players are outstripping VCRs as the medium for watching major movie rental and retail releases, so sending your home movies to friends and rellies via DVD is the next logical step. There is also a large potential market for creating commercial short-run projects on DVD rather than bulky old video tape.

DVD options

iDVD is simple and all you need for consumer-level ventures. For more professional projects, Apple's £705 DVD Studio Pro offers all the features you need (see opposite).

Apple is selling its own branded (4.7GB) DVD-R discs for just £7 each. This is a lot cheaper than the usual whopping £30 fee. Most of the time, you'll be burning standard CD-R discs, which you can buy in bulk for as little as 33p each. CD-RW discs cost about 90p each.

The SuperDrive reads DVD at 6-speed (6x). As with the CD-RW drive, it reads CD at 24x, writes CD-R at 8x, and rewrites CD-RW at 4x For more on the SuperDrive, see page 51).

The extra £400 for the SuperDrive is a real bargain. Apple dealer Compu-b (**www.compub.net**) is offering CD Cyclone's FireWire-based external SuperDrive DVD recorder for £699 (ex. VAT). However, availability is not yet known, and it could be months away from the UK. If there's even the slightest chance you might want to author DVD-R discs, it's well worth paying the extra £400. If you're sure there's no chance you'll want to create DVDs, then save the cash.

Top specs

Apart from the SuperDrive and iDVD software, the 733MHz Power Mac G4 is exactly the same in both models. The standard configuration comes with: 256MB of RAM; fast 7,200rpm 60GB Ultra ATA/100 hard disk; 32MB Nvidia GeForce2 MX video card installed in the AGP 4x slot; two FireWire and USB ports; four PCI slots; 10/100/1000BaseT ethernet; built-in 56K V.90 modem; and iTunes and iMovie 2 software.

The Power Mac G4 533 DP has half the RAM (128MB), and its hard drive is two-thirds the size (although the 40GB disk also runs at 7,200rpm). It does, however, boast all the other cards, ports and parts as the 733MHz model.

Like all the new G4 Power Macs, both have a new 133MHz system bus, compared to the older, slower 100MHz bus. The 733MHz Power Mac, however, does have some advances that aren't enjoyed by the 533MHz or 466MHz systems. Its G4 features more sophisticated caching (256K level-2 on-chip cache and 1MB level-3 backside cache), compared to the 1MB L2 cache on the 466MHz and 533MHz systems. The 667MHz Power Mac also includes this improved caching, but was unavailable for testing.

G4 Power Macs: speed of *or* number of processors?

Best results in test.

Mac model	Speedmark 2.1	Photoshop 6.0.1 (results in seconds) Gaussian Blur 10	Unsharp Mask 2.3	RGB to CMYK	Lighting Effects	Quake III (frames per second)	SoundJam 2.5.2 MP3 encode
Power Mac G4/733	183	5	6	15	6	82.3	1:22
Power Mac G4/533 DP	176	3	5	25	4	78.5	1:47
Power Mac G4/533	168	5	7	26	7	74.0	1:59
	Longer is best	Shorter is best	Shorter is best	Shorter is best	Shorter is best	Longer is best	Shorter is best

Speedmark 2.1 scores are relative to an iMac 350MHz, which is assigned a score of 100. Photoshop scores are in seconds. Quake 3 scores are in frames per seconds. SoundJam and Cinema 4D scores (see box, below) are in minutes:seconds. We tested each system with Mac OS 9.1, 256MB of RAM, a default system disk cache, and Virtual Memory disabled for all applications tests. Virtual Memory is enabled for Quake III. We set displays to 1,024-x-768 pixel resolution and 24-bit colour. Photoshop tasks used a 50MB file. Photoshop's memory partition was set to 150MB and History set to minumum. Cinema 4D XL's memory partition was set to 80MB. We rendered a model at a resolution of 640-x-480 pixels with oversampling set to 4 by 4. We tested MP3 encoding with an audio-CD track that was 9 minutes and 25 seconds long and converted it using a default setting of 128Kbps in SoundJam 2.5.2. We tested Quake III v1.27h at a resolution of 640-x-480 pixels, with graphics set to Normal using converted timedemo 1 from 1.17.

– Macworld Lab testing by Jason Cox and Ulyssis Bravo

Macworld Lab tests

Unsurprisingly, the 733MHz Power Mac G4 is the fastest Mac ever – 9 per cent faster overall than the single-processor 533MHz model we tested in our March issue. However, the £690-cheaper 533 DP system trails the 733 by only 4 per cent. Even if you don't need the SuperDrive, the 733's speed boost over the 533 DP will cost you £75 per performance percentage mark.

And this is where the dual-processor system starts pulling ahead. Time constraints meant we couldn't test this model with the final version of OS X (when the DP model should really fly), but over a suite of demanding Photoshop tasks, the 533 DP beat the 733 on all tests apart from the un-MP-optimized RGB-to-CMYK mode shift. See the table above for specific details. The 533 DP also trashed the 733 when tested with Cinema 4D XL, which is also optimized for more than one processor.

Both models boast Nvidia's 32MB GeForce2 MX video card that – alongside faster chips – ups performance over the entry-level 466MHz Power Mac, which ships with the 16MB ATI Rage 128 Pro. Overall, the 733 is 16 per cent faster than the 466; the 533 DP is 12 per cent faster than that £1,199 system, and 5 per cent faster than its single-chip equivalent.

Macworld's buying advice

Graphics pros who use MP-optimized applications – such as Photoshop or Cinema 4D – should definitely consider the 533 DP, especially if they're up for a swift move to Mac OS X. If DVD authoring isn't in your sights, the 533 DP offers better value for money than even the 733 CD-RW. If DVD is, then the 733 SuperDrive is the only choice. For general and non-graphics-heavy work, either 733MHz model is fastest, although not by a great deal. I'm putting my faith in multiprocessing for the future, so, overall, the 533 DP is editors' choice.

Simon Jary

MP power proven

Mac model	Cinema 4D XL 6.3 (minutes: seconds)
Power Mac G4/733	10:26
Power Mac G4/533 DP	6:45
Power Mac G4/533	13:21
	Shorter is best

Macworld LAB TEST

Pro DVD-authoring solution

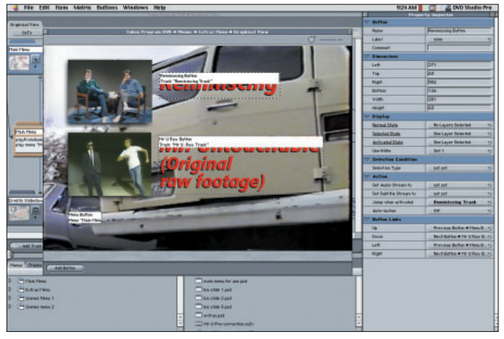
DVD Studio Pro

Publisher: Apple (0800 039 1010) www.apple.com/uk
Pros: Full-featured and easy to use; good integration with Photoshop.
Cons: Limited project views; MPEG encoder offers little help in choosing compression settings; not optimized for Mac OS X.
Min specs: G4 processor; Apple-supplied AGP card; 128MB of RAM; DVD drive; 1,024-x-768 display at thousands of colours; DVD-R recorder, DVD-RAM drive, or DLT tape drive for output.
Price: £705 (excluding VAT)
Star Rating: ★★★★/8.1

Continuing its aggressive march into the world of video and DVD production, Apple recently introduced DVD Studio Pro, a high-end DVD-authoring package capable of producing sophisticated DVD-video titles. Aimed squarely at the professional DVD-authoring market, DVD Studio Pro provides all the tools you need to create everything from corporate presentations to commercial-quality DVDs.

While DVD authoring may not be a widespread "killer app", DVD Studio Pro is good enough to help reinforce Apple's sturdy position in the video and film production world. Though DVD Studio has its quirks, I was very pleased to find that version 1.0 is a solid product, and definitely usable for almost any authoring task.

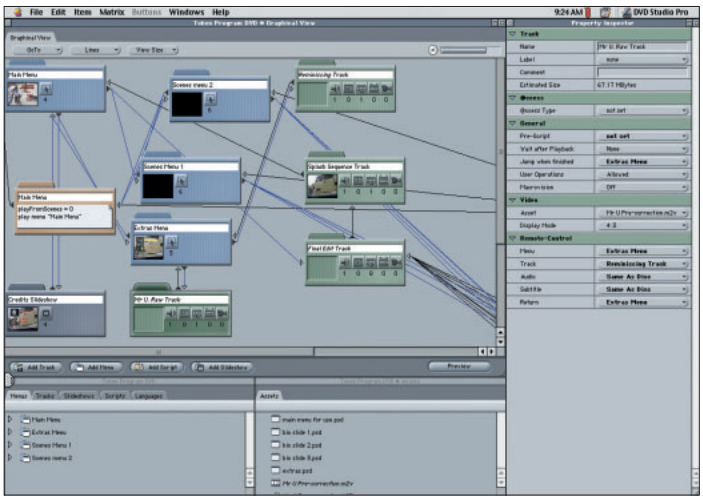
There are many different kinds of DVDs ranging from DVD Video (the video discs that you rent at your local video store) to data-packed DVD-ROMs that you stick into your computer. DVD Studio Pro is strictly for authoring DVD Video discs.



Before you can start any authoring, however, you must prepare your source media. DVD video must be in MPEG-2 format with the associated audio stored separately as AIFF or AC3 files. The DVD Studio Pro application itself offers

continues page 53

Menu master
Creating menus in DVD Studio Pro is a simple process of importing your graphics, drawing your buttons, and specifying which layers in your image should be used for each button state.



Screen filler

DVD Studio Pro's Main Screen provides a graphical view of all of the components in your project and a simple Inspector palette for changing the parameters of the selected component.

no video production, editing, or media-conversion functions. However, the installer does provide a new MPEG-2 QuickTime codec. As long as you're using QuickTime Pro, you can convert any QuickTime movie to MPEG-2 simply by choosing the MPEG-2 codec when you export from your editing app.

If you already have an edited QuickTime file, then you can re-compress it by opening it in the QuickTime Player and exporting it using the MPEG-2 codec. In our tests, MPEG-2 conversion was roughly twice as fast using the QuickTime Player as it was when rendering from Final Cut Pro.

Bandwidth workaround

The MPEG-2 codec creates two files, an MPEG-2 video file and an audio file in AIFF format. Because of bandwidth limitations in the DVD Video spec, you may find that you need to convert your audio to AC3 to get it to play in sync with your video. The included Apple A.Pack application can perform the compression, and also allows you to use multiple channels to create a 5.1 surround-sound mix.

Once you've got your audio and video in the right formats, you'll want to build your menu pages and any associated still images using Adobe Photoshop. Though you can use any paint program that outputs TIFF or Photoshop files, Apple has done such a good job with its Photoshop compatibility that it's not worth using anything else. DVD Studio Pro recognizes everything from multiple layers to unrendered type.

Only after you've prepared all of your media are you actually ready to start wiring together a DVD. DVD Studio Pro presents a fairly simple interface composed of a large window that displays a flowchart-like view of your project, an Assets window that helps you keep track of all of your media elements, and an Inspector window that can set parameters, create links, and assign imported assets.

A DVD is composed of several types of components. Menu components can use either a still image or movie as a background, and provide the interface through which users will navigate the disc. Tracks contain video and audio, and can be divided into chapters to facilitate non-linear playback, while Slide Shows can contain a series of still images that advance as a slide show. Finally, Scripts allow the creation of complex interactivity using a simple scripting language.

To create any of these components you simply click on the appropriate button at the bottom of DVD Studio Pro's main window. This creates a small tile in the Graphical Display that represents that component. You can then attach any appropriate media to that tile, and configure its parameters using the Inspector.

Holistic approach

Most components are related to other components – a menu might link to a Track or another menu, for example – and such links are indicated by simple flowchart lines that connect different tiles. If you've ever used a visual programming-language or database application, such as Double Helix, you'll feel right at home in DVD Studio.

Each tile also has a number of customizable parameters that let you control how the navigation buttons on the user's remote control will function at any given time. Other parameters include looping controls and options that let you specify branching and playback order.

Authoring in DVD Studio Pro is very straightforward and deceptively simple. Using nothing more than the basic options, you can create very complex projects. For more refined control, the scripting language is simple to use and well-implemented. Full support for CSS and Macrovision encryption are provided, as are region controls for specifying where your DVD can be played. Apple also includes a very good subtitling tool for creating subtitle tracks that can be applied from within DVD Studio Pro.

At any time, you can press the preview button to preview an individual track or component, or to preview your disc from its beginning – what the user would see when they first hit Play. The preview feature actually runs the video and audio through your computer's DVD playback hardware, so you can see what your images will look like as video.

My complaints with the authoring environment are few. It would be nice if the application notified you when an external asset has been altered, à la Adobe After Effects. Also frustrating was the lack of a zoom mode in the Graphical view. With a lot of tiles, your project can quickly use up all of your screen space – a problem that could be easily remedied with a zoom facility.

When your project is completed, the Build command will multiplex your video and audio into the appropriate DVD Video format and output the data to a VIDEO_TS folder on your hard drive. DVD Studio Pro can automatically dump this folder to a DLT tape drive, or to Apple's new SuperDrive. Or, if your duplication facility supports it, you can simply deliver the folder on a hard drive.

Our only complaint with output was that, on one or two occasions, the resulting output did not play as well as it did in the program's preview mode. This problem was correctable by recompressing our video with a different bit-rate, but it would have been nice to see the trouble before building. Note that, with Apple's DVD Player 2.5, you can play your files from your hard drive and see exactly how they'll look and play from a DVD.

Macworld's buying advice

DVD Studio Pro is a first-rate authoring system. Though we found one or two minor quirks, it was easy to work around them. No matter what your project, DVD Studio Pro will provide a robust, powerful environment for authoring.

Ben Long

SuperDrive

Apple's new DVD-R SuperDrive is a great option for creating one-off DVD prototypes.

However, there are a few caveats you need to be aware of. First, there are two kinds of DVD-R media: DVD-R for Authoring and DVD-R for General. Either can be played in any DVD drive, but Apple's SuperDrive can only write to DVD-R for General discs – which currently only come in 4.7GB sizes. Neither format provides support for CSS encryption, which means you won't be able to write CSS-encrypted discs (nor dupe your favourite DVD Videos!).

Unfortunately, media vendors are not always diligent about labelling their blank media appropriately, so be careful when buying blanks, you may end up with discs you can't use.

Currently, there is no way of writing data (as opposed to video) to DVD-R via the SuperDrive. In our tests, Toast 5 was able to recognize the drive, but not write to it. Roxio says a patch should be available in April that will allow Toast to write to DVD-R for General.

Finally, it's worth noting that Apple's SuperDrive is not a very speedy drive. Whether burning CDs, DVDs or just reading a plain old CD-ROM, it's a poky performer. If your DVD authoring needs are complex – larger than 4.7GB and requiring CSS encryption – then you may want to opt for a DVD-RAM or DLT tape drive for output, and get a fast CD burner in place of the SuperDrive.

In the April issue of *Macworld*, we looked at the new range of iMacs that Apple introduced at Macworld Expo Tokyo. The Indigo-coloured, entry-level iMac (£799 inc. VAT) is effectively the same machine as the old iMac DV (400MHz G3, FireWire, 64MB of RAM, 10GB hard drive, 8MB ATI Rage 128 Pro video card). But the new mid-range and top-end iMacs have significant advances over their predecessors, with CD-RW drives, faster chips and larger hard drives.

Like the previous iMac DV Special Edition (SE), the new mid-range iMac harnesses the power of a 500MHz G3 processor. Aside from that 50MHz increase, this model is effectively the same as the old iMac DV +, except with a slot-loading CD-RW instead of a DVD-ROM drive. The 20GB hard drive and under-powered 64MB of RAM remain.

The new top-end iMac SE boasts a 600MHz G3, healthier 128MB of RAM and generous 40GB hard drive, as well as CD-RW drive. Its ATI Rage Ultra video card has 16MB of video RAM compared to the 500MHz's 8MB Rage 128 Pro.

Both of these systems are available in Apple's lurid new patterns: Flower Power and Blue Dalmatian. Personally, I find the 400MHz and 500MHz iMacs' choice of Indigo or the 600MHz model's Graphite more pleasing, but I'm not getting involved in the vociferous argument of taste that Apple has plunged itself into with these clever plastics. To turn a phrase, you either love 'em or hate 'em.

Turn to burn

The CD-RW drive is a major plus for Apple's consumer desktop system. Of course, CD burning has been possible in the past, by adding a USB or FireWire external drive. Now, new iMac owners have it built-in – and no Windows PC with internal CD-R looks as good as the iMac with its slot-loading mechanism doing away with ugly, fragile trays.

The drive reads CDs at 24-speed (24x), writes CD-R discs at 8x and rewrites RW discs at 4x. Unlike external CD-RW drives, it doesn't come with Roxio/Adaptec's Toast CD-burning software. Instead, it's ably complemented by Apple's Disc Burner utility for storing data files via simple drag-&-drop to disc icon, and iTunes 1.1 for audio files.

Apple's free iTunes digital-music jukebox software (reviewed *Macworld,* March 2001) is a real bonus for iMac owners, especially those with these built-in CD-RW drives. It's perfect for ripping audio files from CDs, organizing your MP3 or AIFF play lists, burning CDs, and even watching your music play (via some wild audio visualizations). All the new iMacs also come with Apple's sophisticated yet utterly simple iMovie 2 digital video-editing program. And, like all Macs running at least Mac OS 9, they can take advantage of Apple's iTools services – including free email addresses, 20MB of free server space for adding your own Web pages, and a bunch of classy templates for creating those pages without ever having to worry about HTML or silly Internet protocols.

All the new iMacs come with two high-speed FireWire ports, so you can connect digital camcorders and external hard-drives with ease. Two USB ports are there for linking input (mouse, keyboard, joystick, scanner, etc) and output (printer) devices. If you want to connect the iMac to a network, 10/100BaseT ethernet is built right in. If you don't want that network to mean your home or office gets tangled up in cables, you can add an AirPort card and BaseStation for wireless connectivity, which supports the IEEE 802.11 Direct Sequence Spread Spectrum (DSSS) industry standard. This means you can also browse the Web and send emails up to 150 feet away from your phone line.

Macworld Lab tests

We tested the new 500MHz and 600MHz iMacs, and compared their scores to those of a (2000-vintage) 500MHz iMac DV SE and a 466MHz Power Mac G4.

Neither the 500MHz nor 600MHz G3 iMacs come close to matching the performance of the G4 466. Faster system bus (Power Mac's 133MHz vs iMac's 100MHz), better chip architecture, Velocity Engine (AltiVec) capabilities, and so on, all add up to a convincing win for the G4 machine.

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iMacs: new SE no speed leap on old

Best results in test.

Mac model (installed RAM)	Speedmark 2.1	Quake III (frames per second)	SoundJam 2.5.2 MP3 encode
iMac SE 600MHz (128MB)	133	36	2:25
iMac 500MHz (64MB)	113	31	2:54
iMac SE 500MHz (128MB)	101	32	2:45
PM G4 466MHz (128MB)	167	46	2:00
	Longer is best	Longer is best	Shorter is best

Speedmark 2.1 scores are relative to an iMac 350MHz, which is assigned a score of 100. Quake III scores are in frames per second. SoundJam scores are in minutes:seconds. We tested each system with Mac OS 9.1, standard ripping RAM configuration, a default system disk cache, and Virtual Memory enabled for all tests except SoundJam. We set displays to 1,024-x-768 pixel resolution and 24-bit colour. We tested MP3 encoding with an audio-CD track that was 3 minutes and 25 seconds long and converted it using a default setting of 128Kbps in SoundJam 2.5.2. We tested Quake III v1.17 at a resolution of 640 x 480 pixels, with graphics set to Normal. – **Macworld Lab testing by Jason Cox and Jim Galbraith**

High-end Macintosh consumer desktops

iMac SE (600MHz)

Manufacturer: Apple (0800 039 1010)
www.apple.com/uk
Pros: 128MB RAM; 40GB hard drive; CD-RW; 16MB VRAM; iMovie 2; iTunes 1.1; iTools.
Cons: Not available in Indigo case colour.
Price: £1,199 (inc. VAT)
Star Rating: ★★★★/8.8

iMac (500MHz)

Pros: CD-RW; 20GB hard drive; iMovie 2; iTunes 1.1; iTools.
Cons: Only 64MB of RAM; only 8MB of VRAM compared to 16MB in US version; not available in Graphite case colour.
Price: £999 (inc. VAT)
Star Rating: ★★★★/8.6

The 500MHz and 600MHz iMacs are available in Blue Dalmatian (top left) and Flower Power (above). The 600MHz model is also available in Graphite (below).

The 400MHz and 500MHz iMacs are also available in Indigo.

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Pocket-sized hard drive

FireLight 20GB

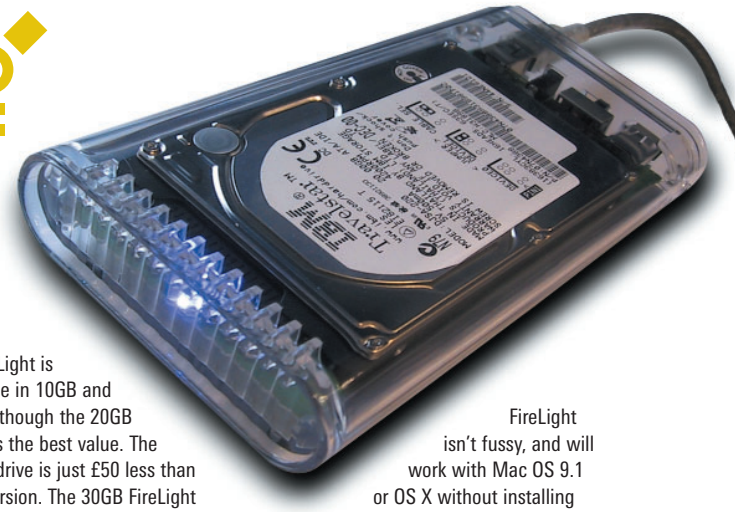
Manufacturer: Mac and More (01442 870 300) www.macandmore.co.uk
Pros: Small; light; pretty.
Cons: Small enough to lose in your briefcase.
Min specs: FireWire-equipped Mac.
Price: £249 (excluding VAT)
Star Rating: ★★★★/8.7

Ever wanted to take a file home from the office, but found it too big for the usual tricks – such as emailing it, sticking it on a Zip or Jaz drive, or even burning a CD-ROM? With more video and other high-volume memory-hungry activities becoming an everyday occurrence, something more's needed. Enter FireLight – smaller than a Zip drive, but with 80-times the capacity.

FireLight is a simple concept. Take a 20GB IBM Travelstar drive and stick it in a box with a FireWire bridge. The resulting product is one of the handiest and sexiest things I've seen in ages.

LaCie has its PocketDrive that does pretty much the same job, but it is more expensive and not as pretty as FireLight. One thing the PocketDrive does have over FireLight is an additional USB port. The drives are almost identical in size, but the LaCie model has a rubberized protective case – although I wouldn't recommend dropping any hard drive.

Having FireWire connectivity negates the need for an external power supply, though you can get one. Even if you were on the road and wanted to plug your FireLight into a PowerBook it would work.



The FireLight is also available in 10GB and 30GB sizes, though the 20GB option offers the best value. The £199 10GB drive is just £50 less than the 20GB version. The 30GB FireLight is a hefty £216 more. Prices for hard drives are volatile in much the same way as RAM or chip prices. So, in the future, the 30GB drive's price should fall.

As with all hard drives, the size quoted is unformatted. Formatting with Apple software will get you 18.6GB of space. Third-party formatting software would give a little more space, but it's hardly worth the effort.

FireLight isn't fussy, and will work with Mac OS 9.1 or OS X without installing the software. If you have an earlier OS, it's just a matter of installing a driver.

Macworld's buying advice

If you need to regularly transport big files, or need to backup your hard drive on the road, FireLight is ideal. It's small enough to go in your pocket and light enough not to spoil the cut of your clothes.
David Fanning

XPress XTension

Short Words

Publisher: Two 4 You www.24u.cz
Pros: Two-letter words won't break across lines.
Cons: Problems with English.
Price: $90 from Web site
Star Rating: ★★★/6.5

QuarkXPress doesn't have a feature that handles small words. There's no way to ensure that a line doesn't end in a, I or a two-letter word, something typographers avoid. There's also no standard way to keep numbers with words.

Short Words attempts to get around this. It replaces normal spaces by unbreakable ones, using XPress's control-spacebar combination.

Short Words' five features can be turned on and off individually from a preferences panel and triggered from the utilities menu. The first of these handles the breaking of the six vowels (including y), while the second deals with four single consonants s, z, v and k – neccessary in languages such as Czech. Two-letter words are handled by the third feature, and the final two deal with the inserting of unbreakable spaces either after or before numbers. The last of these would work with Mac OS 9 or Formula 1.

Macworld's buying advice

Short Words works as intended, but it has serious shortcomings with the UK-English language. For instance, the lack of user-definable single consonants precludes its use with trademarks such as Network Q. Also, there's no undo facility. As Short Words does not work on individual paragraphs, it's important to be able to see what has changed.
Vic Lennard

Video-editing app

Final Cut Pro 2

Publisher: Apple (0800 039 1010) www.apple.com/uk
Pros: Improved media management; real-time support; better documentation.
Cons: Rendering speed still slow; no Mac OS X or Classic support.
Min specs: 300MHz blue-&-white G3; Mac OS 9.1 or later; QuickTime 5.0 or later; 105MB of free RAM.
Price: £706 (excluding VAT)
Star Rating: ★★★★/8.2

Believe it or not, Apple released more than just Mac OS X in March. Just a few days before unveiling its new operating system, Apple shipped version 2.0 of Final Cut Pro, its professional non-linear editing system that hadn't seen an upgrade since version 1.2.5. Though OS X got more press, if you make your living cutting video or film, Final Cut Pro (FCP) 2.0 is by far the more important upgrade.

Offering dozens of new features, FCP improvements include user interface adjustments, support for Matrox's new real-time PCI cards, improved support for multi-processor CPUs, and improved media management. Priced at around £175, the upgrade is well worth the money if you regularly use FCP.

Perhaps the biggest surprise in FCP 2 is that it is not OS X native. In fact, not only has the program not been updated to take advantage of OS X's new features, it won't even launch in the new OS. So, if you've already installed OS X, you'll need to boot into 9.1 if you want to run FCP 2. You'll also need to install QuickTime 5.0 RT – which is included on the installation CD – as FCP 2 won't run on previous versions of QuickTime.

We had no problems installing version 2 over our existing 1.2.5 installation. FCP can often be choosy about the DV codecs and extensions in your System Folder, but version 2 updated all requisite components. Version 2 also had no trouble opening our earlier project files.

At first glance, there is little difference in version 2's appearance. Its interface is largely identical to its predecessors. But, as you begin to use the program you will slowly discover dozens of refinements and tweaks. For example, the Final Cut Timeline window now includes a button for toggling the Snap feature, a new Scrubber hand for scrubbing through video, and a new Speed indicator that makes it easier to see where you have sped up or slowed down a video clip. In addition, where version 1 placed a single red bar over a clip to indicate that the clip was unrendered, version 2 now places separate coloured bars for video and audio rendering.

Interface for new media
Final Cut Pro's interface is largely unchanged, save for the addition of audio VU meters, and a number of new columns in the Browser window.

FCP's Preferences dialogs have also had a working over. Though this may not sound like a big deal, if you've ever done a lot of video capturing in FCP, you know that you often need to configure scratch disks, device-control parameters, and rendering options. The new Preferences dialogs are better-organized and offer more explanation of their options.

Media management, possibly the most crucial part of any editing task, is much improved in version 2. Where version 1's Browser window allowed you to create folders for organizing clips, version 2 goes much further. Clip titles can now have coloured labels attached to them to ease sorting and organization. In addition, many Finder-like columns have been added to the Browser window. Also, the start and end timecode is shown for each clip as well as the clip's modification date. Clicking on any column sorts the browser window by that category.

Version 1's Media Manager and Sequence Trimmer have been replaced by a new Media Manager window, which still allows for trimming of clips as well as copying and moving clips from and to other folders and drives. New to the Media Manager is the ability to delete all or part of a clip, making it simple to recover drive space lost to over-zealous capturing. The Media Manager window even includes a facility for automatically deleting media that's not used in your project. This feature doesn't just remove the media from your project, it actually trims the original files on your drive.

FCP 2 includes a new Relink command that can relink project contents to original media files. In general, the program provides more, and better, linking and management support.

Capturing has also seen some changes, including a new protocol for naming captured media files. Where version 1 simply created a Capture Scratch folder on the target drive, version 2 now uses the project's name when creating scratch folders. Though this can make media management a little easier, we'd prefer more thorough control – such as a user-specified capture folder.

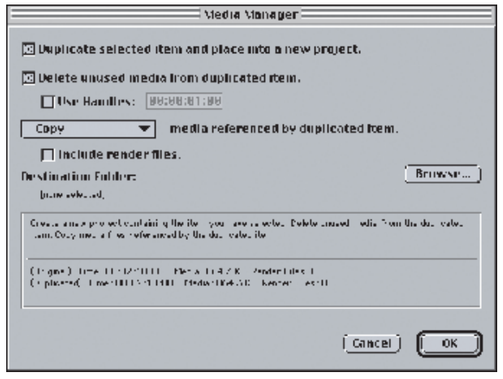
iMovie timesaver

Borrowing a page from iMovie, FCP 2 includes a new Start/Stop Detection feature that looks for breaks in a tape's timecode and automatically assumes that these are different scenes. Though you won't want to rely on this feature all the time, if you have intentionally shot your footage with timecode breaks, this tool can be a real timesaver.

Rendering speed has always been an issue in FCP. Though the program doesn't require rendering for cuts-only sequences, if you perform any adjustments, transitions, effects, or composites, expect to spend a lot of time watching the program's progress bar.

Performance is improved in version 2. In our tests, a fairly typical project – including a number of filters, opacity changes, transformations, rotations and dissolves – took a little over 15 minutes to render, while the same project under version 2 rendered in a little over 12 minutes. Though we were unable to test it, Apple claims that version 2 provides much-improved multiprocessor support.

Clip time
Final Cut's Media Manager window lets you copy and move clips as well as automatically delete unused media from a clip.



Though version 2 is speedier, power users will want to take advantage of the program's support for new real-time rendering hardware. If you have a Matrox RTMac card (see Product News, page 39) installed in your machine, then many of Final Cut's features will be accelerated to real-time. Matrox's cards can process up to three tracks – two video and one graphics layer, or two graphics layers and one video track – in real-time. Though filters are not accelerated, compositing, scaling, motion, and opacity are. For video collage and compositing work, this is a huge plus. Other vendors, we hope, will follow suite. We'd particularly like to see ICE support for the acceleration of effects and keying.

Final Cut's list of improvements continues with new audio VU meters and support for ProTools OMF format – for exporting audio tracks to an external audio-editing package, such as the included PeakDV application.

FCP 2 also includes a number of new animated text features, including crawls and rolls – effects that previously had to be created using the program's compositing tools or EffectsBuilder facility.

Finally, version 1's skimpy 250 page manual has been completely re-written and expanded to a whopping 1,400 pages. With expansive coverage of all aspects of the program, as well as the accompanying tutorials on the CD-ROM, Final Cut's documentation is very very impressive.

Macworld's buying advice

If you regularly use Final Cut, £175 for this upgrade is a steal. Though real-time support will probably be the most talked-about feature, there are plenty of others that make the program worth upgrading. From improved performance, to better media management, to the improved documentation, this is a beefy upgrade. Version 1 was a hard act to follow, version 2 will be even more difficult.
Ben Long

Bespoke Photoshop for photographers

Photoshop Elements

Publisher: Adobe (020 8606 4001) www.adobe.co.uk
Pros: Powerful photo-stitching capability; simple to use; great interface; good value.
Cons: OS X Classic version only; CMYK option would be nice.
Min specs: Mac OS 8.6; 64MB of RAM; 130MB hard-disk space.
Price: Introductory offer until 10 June: £59 (inc VAT), thereafter £79 (ex VAT).
Star Rating: ★★★★/8.6

Photoshop Elements is the latest addition to the Adobe image-editing family, being the offspring of Photoshop 6.0 – younger, but brighter, sibling of Photoshop LE and second cousin of hillbilly spin-offs, PhotoDeluxe Home and Business editions.

Elements differs from LE in two key regards: it has a pile of thoughtfully crafted features unique to it, and it's not built on the grown-up Photoshop interface – instead offering a host of splendidly intuitive navigational and operational aids for those new to mid-range image editing.

Other features are also crafted for photographers whose ambition doesn't always match their expertise. Key among these are Elements' "darkroom" tools – Sponge, Smudge, Redeye Brush and Dodge, which together improve shoddy results from under-exposure, over-exposure and poor use of flash (there are also backlight and Fill Flash options under the Enhance menu).

Ease of use is another major plus with Elements, thanks to a number of "stabilizer-wheels" features for image-editing newcomers. Chief among these is the Recipes palette, which interactively teaches the user how to perform just about any multi-step process likely to be needed. Then there is the Hints palette, which provides context-sensitive diagrams for each tool. Rookies will also welcome the collection of pop-down browsers, giving easy access to files, special effects and filters. Everything sits in pop-down tabbed-folders along the options bar.

The useful Save for Web function of Photoshop 6.0 is present, as is the full compliment of layers functionality.

Macworld's buying advice

Photoshop Elements offers both SLR and digital photographers the opportunity to get beyond the simplistic, often gimmicky, image-editing software that ships with digital cameras and scanners. Unlike Photoshop LE, its interface is more Mini than McLaren, with all features and explanatory tools beautifully signposted. Adobe would do well to mimic this layout for the rest of its software. Less is so much more.
Sean Ashcroft

Stitched up
Without doubt, Elements' "wow factor" is its Photomerge feature. If you're prone to taking 15-frame, 360-degree sweeps of the horizon – and then Sellotaping this into a jagged four-foot strip-image – then you'll love this. Photomerge creates panoramic views from your composite images automatically – by resizing, skewing and blending portions of multiple images, both horizontally and vertically, into a single, seamless image. It does its most accurate work with distant images, such as mountains. For fixed-point, close-up panoramas (such as the ITN building in the three images above) Photomerge's automatically rendered version required some tweaking (below, left) because the harsh perspective asked too much of its rendering engine and the joins were evident. This, though, is a simple process, requiring some trial-and-error tweaking using Photomerge's three-tool manual-adjustment palette. There is some distortion (the taxi on the left of the image) but what the heck? It looks great. Even better, unlike your Sellotaped panoramas, you can resize and crop the Photomerge image, print it on photo-quality paper on an inkjet and hang it on your wall. Or, you can use such images to give a Web site real impact.

High-end PDA

Visor Edge

Manufacturer: Handspring
www.handspring.co.uk
Pros: Slimmer; faster; cooler.
Cons: Expensive.
Min specs: USB.
Price: £329 (including VAT)
Star Rating: ★★★★/8.8

The Handspring Visor range of Palm OS personal digital assistants (PDAs) has turned out to be an amazingly successful venture. People love the expandability of the SpringBoard port on the back. It allows you to turn your Palm into a telephone (coming soon), a GPS unit, a camera or any number of other nifty gadgets. However, if you compare the Visor to its main competitor, the Palm, it's much bigger. By comparison, the Visor looks like an '80s mobile phone – but not any longer. Now Handspring can compete with Palm, with the latest addition to its range, the Visor Edge.

The Edge is just 11mm thick and comes in a metal case available in three colours. You can choose from anodized red or blue, but if you want it to match your Titanium PowerBook G4, you should choose the silver version.

People, on the whole, loved the look and feel of the Edge, but there was some concern that the metal cover seemed a bit wobbly. However, the cover is not a big deal, as it's designed to be removable and it's secure when it's closed. People already using Visors were mostly

concerned about the apparent lack of SpringPort. After all, it's one of the best reasons for choosing the Visor.

Rest assured, the SpringPort hasn't been made redundant – just downsized. It's now used only when you need to expand the capabilities of the Edge. All you do is slip off the cover and attach the – now external – SpringPort. Then you'll be able to attach any expansion module. When you're finished, slip off your SpringPort and re-attach the cover.

The actual working of the Visor is mostly unchanged. There are a couple of enhancements, such as the new silent alarm. Instead of interrupting meetings with a rude beep, now the alarm will flash the light on the power button.

Another enhancement is the address lookup. Previously, if you needed a number in a hurry, you'd have to get your stylus out. Now contact details can be accessed using the Edge's buttons.

Macworld's buying advice

Although this is a very desirable machine, I am going to reserve judgement until the latest Palm ships. The Palm m500 will be out this month – it costs the same and it's equally slim and luscious. I think the Visor has the edge (sorry) because it's expansion options are already well established. But now that Palm offers some expansion (see page 31), the decision is less clear-cut.

David Fanning

Entry-level PDA

Palm m105

Manufacturer: Palm
(020 7365 9820)
Pros: Affordable entry-level PDA with all the power of Palm OS.
Cons: Small screen; non-Mac-compatible serial interface adds £25 to the price.
Min specs: Mac OS 7.5.3 for serial; OS 8.5.1 for USB.
Price: £169 (including VAT)
Star Rating: ★★★★/7.5

The m105 is Palm's successor to its popular entry-level m100. The handheld is fully featured, and comes with a huge number of pre-installed applications – including a Date and Address Book, a To Do List and a Memo Pad – and plenty of space for more in its 8MB of RAM.

Most Palm OS applications occupy under 100K of memory, so even at 100K per app, the m100 can accommodate up to 80. It runs Palm OS 3.5 – unlike Palm's recently announced m500 series, which runs Palm OS 4.0.

Red eye

The m105 can communicate with other Palm OS handhelds, mobile phones and some Macs using the built in infrared (IrDa) port and software.

It uses Palm's Graffiti text-input software. It also features a NotePad application that lets users write and save short messages directly onto the screen in their own handwriting. A clock completes the unit's basic range of applications. Other bundled apps include Tetris, Chess, Quickword and StreetFinder.

Sadly, many of the bundled applications are demo versions, so expect to see a lot of registration reminder notices while you decide what suite of tools you need.

The m105 weighs 125 grams and at 1.8cm is much thicker than its premium-priced siblings. It offers an LCD screen, is backlight and runs on two AAA alkaline batteries. The unit has a removable faceplate, with 19 faceplate designs available for rabid individualists.

A serial HotSync cradle comes in the box, though this isn't such good news for Macintosh users as we also have to buy a £25 Mac Connect kit in order to link the Palm up.

The m105 has a much smaller monochrome screen than other Palms (5-x-6.5cm), and applications are visible in only 5-x-5cm of this space. If you're going to be using the Palm extensively, then it's probably worth investing in a higher-specification model. However, the m105 represents excellent value for money.

Palm's Mobile Internet Kit is included, and allows access to the Internet, email, Short Message Services (SMS), WAP and Palm's preferred Web Clipping services. However, you'll need a compatible mobile phone, computer or clip-on modem module to use the kit. You also need an ISP geared up for mobile phone and handheld browsing.

I found the m105 to be a little flimsy – for instance, the faceplate moves slightly in its mounting. This meant one of the buttons kept getting stuck behind the faceplate during a particularly energetic game of Tetris – though if you want something to play games on, why not buy a GameBoy instead?

Once I got hold of the Mac Connect

Kit, I found that syncing up to my iBook was a breeze. I also exported data from a variety of applications, and found the process fairly straightforward – once I'd disciplined myself to read the instructions.

Macworld's buying advice

If you know you'll be making full and extensive use of your Palm, then I recommend purchasing a higher-end model that offers larger screens, is more durable and smaller. However, for £122, the m105 is excellent value for a first-time Palmer, or for someone who just wants a safe place to keep their data.

Jonny Evans

MIDI software bundle

Reason

Publisher: Propellerheads www.propellerheads.se
Distributor: Midiman/M-Audio UK (01423 886 692)
Pros: A powerful music-production environment.
Cons: Needs 500MB free hard-disk space to install the Factory Sound Bank.
Min specs: 166MHz Power Macintosh with 604 processor; 64MB of RAM; Mac OS 8.6 or later; MIDI interface and a MIDI keyboard (or similar).
Price: £299 (including VAT)
Star Rating: ★★★★/8.6

Is MIDI hardware going out of style? You'd think so from the way Propellerheads have put a whole rack of simulated MIDI and audio gear together and called them Reason – it has a fantastic selection of modules that you can hook up to make music.

It includes a sampler called NN19, an analogue synthesizer called the Subtractor, two filters, a host of modulation functions, and a Loop Player called Dr:rex – which plays REX files created in ReCycle. In case you haven't come across this yet, Propellerhead's ReCycle works with sampled loops. By "slicing" a loop and making separate samples of each beat, ReCycle makes it possible to change the tempo of loops, without affecting the pitch. It can also edit the loop as if it were built up of individual sounds – just what you need to get your beats together. Propellerheads' first product was the amazing ReBirth RB-338, which is a simulation of the vintage Roland TR808 and TR909 drum machines – as well as the TB303 bassline synthesiser. If you have this, you can plug it into Reason using ReWire technology, which makes for an even more powerful system.

Reason also has its own drum-machine module called Redrum. This is a sample-based drum machine with ten drum-sound channels into which you can load the excellent set of factory samples – or your own sounds in AIFF or WAVE format. As with Rebirth, there is a built-in Roland-style pattern sequencer, allowing you to create classic drum-machine patterns. You can also use Redrum as a sound module – playing it live from an external MIDI controller or from the main Reason sequencer.

Talking about sequencers, there's also a stand-alone monophonic-pattern sequencer – the Matrix – which is similar to a vintage analogue sequencer. Just connect this to any of the MIDI devices in Reason, and it sends simulated CV (pitch) and Gate CV (note on/off plus velocity) or Curve CV (for general CV parameter control) signals to the device parameter.

Before MIDI was invented, monophonic analogue-synthesisers could be hooked up to a hardware sequencer using patchcords, and Reason simulates this – even down to the patchcords.

To handle the audio outputs there's a Mixer in the rack, based on the popular Mackie 3204 rackmount model. This has fourteen stereo channels, a basic two-band EQ section, and four effect sends. You get a bunch of effects units as well, including the RV-7 Digital Reverb, the DDL Digital Delay Line, the D-11 Foldback Distortion, the CF-101 Chorus/Flanger, the PH-90 Stereo Phaser, the COMP-01 Compressor/limiter, the PEQ2 Two Band Parametric EQ, and the ECF-42 Envelope Controlled Filter. The latter is a synth-style resonant filter with three filter modes, and you can use a drum machine or the Matrix sequencer to trigger its envelope to get some "nasty" sounds.

You can always start out with an empty rack and add devices as needed, and the default song opens with a useful selection of devices already there for you to work with. But what if you want to change the routings? Just press the Tab control on your computer keyboard, and the rack "turns around" to reveal the back panels of the equipment. Here, you can see the connections between devices indicated by virtual patch cables. Connections between instrument devices and mixers use red cables, connections to or from effect devices use green cables, and CV connections use yellow cables. Simply make your connections by clicking and dragging from one socket to another on the back panels.

It's easy to get plenty happening right away with the sequencer. Just hook up a MIDI keyboard and record into any of the sequencer tracks. You can use up to seven MIDI inputs if you have a multi-port MIDI interface. This makes it possible to use several MIDI controllers, and play and tweak each device independently.

The left part of the sequencer area is the track list, showing the names of the sequencer tracks. The columns in this list allow you to connect tracks to devices, route MIDI and mute or solo tracks.

The right part of the sequencer area has two main modes: the Arrange view and the Edit view. With Arrange view selected, you see the tracks lined up vertically with recorded events indicated as coloured bars (red for notes, yellow for pattern changes, and blue for controllers). Here you can cut-&-paste patterns to arrange your Song. The Edit view offers more detailed control for editing notes, pattern changes, controller data, and so forth. And you can have several Reason Songs open at the same time. Each will appear in a separate Reason window, complete with rack, sequencer and transport bar areas. When you've created a complete song, you can record your mix to a tape, CD or DAT recorder – or mix down to an audio file using Export .

Pure Reason
Reason includes a MIDI input and output, a mixer and a host of effects and emulators.

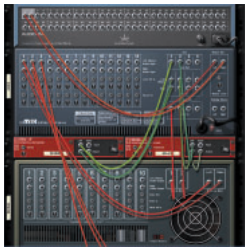
Macworld's buying advice

Reason has to be the best value for money around when it comes to software for synthesizing popular MIDI and audio devices. The sounds are great, and you can incorporate your own samples. You can also control external devices or sync up with a conventional MIDI+ audio sequencer. OK, so it isn't really going to replace hardware racks overnight, but it does mean that just about anyone can now afford to get a game started with their own hi-tech MIDI rack.

Mike Collins

Dr calling
The Dr:rex loop player imports Rex files created in ReCycle, and then adjusts the pitch and velocity.

Patched-up
The Rear Rack option allows patch cords to be added as needed



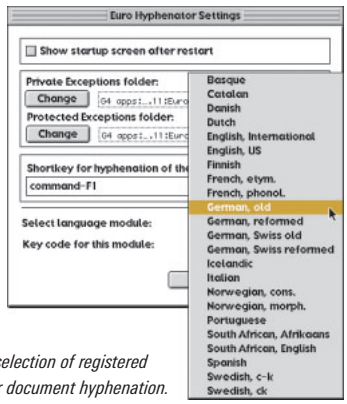
Hyphenate XPress files

Euro Hyphenator XT 2.1.2

Publisher: Techno Design
www.techno-design.com
Distributor: XChange
(020 7588 5588)
Pros: Handles hyphenations for most European languages.
Cons: No undo; pricey.
Min specs: QuarkXPress 3.3x or 4.x; QuarkCopyDesk 1.1.x or 2.x.
Price: £249 (excluding VAT)
Star Rating: ★★★★/7.8

If you work with QuarkXPress and foreign languages, especially those with which you're unfamiliar, you'll be all too aware of the problems with hyphenation. Generally, there are three solutions. You could purchase QuarkXPress Passport, but the price hit is painful, especially if you need multiple copies as would be the case with a publishing house. Using a dictionary is a second option, though hyphenation is often not shown. And, of course, you could turn off hyphenation altogether – and end up with one German word per line.

A better solution is Euro Hyphenator XT 2.1.2, a QuarkXTension that handles the hyphenation for 13 languages: the main European ones (English, German, Spanish, French, Italian, Dutch and Portuguese), Scandinavian (Danish, Finnish, Icelandic, Norwegian and Swedish) and Afrikaans. Additionally, it supports offshoots such as US English, Swiss French and German, and Basque and Catalan Spanish. In short, it will work with most of the European languages you're likely to encounter.



Setting the standard
The Settings dialog gives access to a selection of registered modules and the keyboard shortcut for document hyphenation.

Dutch roots

So how can a small XTension offer this? It uses a linguistic pattern recognition system developed by *TALO, a Dutch-based organization. Developed by Lenie Woestenburg-Van Hees and her husband Jaap Woestenburg with the intention of creating a Dutch hyphenation system (which was integrated into WordPerfect in 1985), *TALO does not focus on specific words, working instead with their roots.

Each language module has two elements. There's the standard algorithm from which the hyphenations are derived, and, additionally, each module has an associated exception list that a user can add to. Such a list can also be imported. For instance, you may wish to hyphenate capitalized words but exclude certain place names. The exception list will deal with this. A multi-user copy of the software can also store a central exceptions list for sharing between users.

Accessible via the Utilities menu, Euro Hyphenator can have a document-based hyphenation keyboard shortcut allocated to it. Alternatively, a text box, selection or specific word can be hyphenated, the latter through Quark's standard ⌘-H shortcut. So with the International-English module, Quark users have an immediate replacement for the standard Quark US-English dictionary – a useful by-product. Other settings include the usual ones: smallest permissible word plus minimum number of words before/after hyphenation.

For Passport users, Euro Hyphenator has another useful feature – the ability to switch between language modules automatically within the same document.

Macworld's buying advice

Two languages were checked with Euro Hyphenator: Spanish and German. Both performed flawlessly. The German modules even picked out the difference between hyphenating strasse as stra-sse in old German (more often written as straße) and stras-se in Swiss German reformed. If there are any downsides to Euro Hyphenator, the lack of an undo facility is one and cost a second. The standard price of £249 buys the first module, which handles one language and its dialects. Further language modules then cost £119 each.

Vic Lennard

Mini-app creator

Transporter

Publisher: Aladdin
www.aladdinsys.com
Pros: Speeds up complicated tasks.
Cons: Limited function set.
Min specs: PowerPC; Mac OS 8.6 or later; 22MB of disk space; 8MB of RAM.
Price: $149 online
Star Rating: ★★★★/7.1

Aladdin Systems, maker of Stuffit Deluxe and Drop Stuff, has released Transporter – a basic scripting utility that enables users to create custom drop-box applications. In other words, it's a simple tool to create small stand-alone programs.

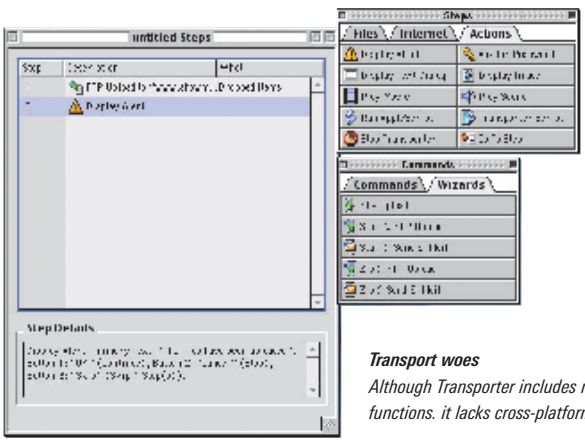
In these days of fast communication and even faster deadlines, Transporter lets you can create programs that speed up complicated tasks.

When first launched, Transporter displays a daunting blank window. You have to click on the functions that you'd like the application to perform – such as creating a new folder, expanding an archive, moving items, mounting a disk image, or playing a movie. You then fill in the required parameters for these functions – telling the application what to do when it is run. Click on the Make Transporter button and you're ready to distribute your masterpiece to the world. For instance, I created a document to aloow colleagues to upload a file easily. It compresses and uploads a file, displays a message to say that the file has been uploaded and sends an email to me. All by drag-&-dropping a file.

This function is a bonus for people who have control over FTP servers and are fed up with having to recite, parrot fashion, what the password is for the FTP server. System administrators can now create a drop box and send it to all of their users.

Once I'd done this though, I found little else to do with Transporter, it has a limited life span. I would've liked to be able to create cross-platform executables to enable PC users to benefit from the ease of use so many of them miss out on.

Also, if you're looking to create Earth-shatteringly good-looking applications, then you will be sorely disappointed. Ideally, there should be more features present in this application. Many things have been overlooked – for instance, creating a script that performs at a time of day or night.



Transport woes
Although Transporter includes many FTP functions. it lacks cross-platform compatibility.

Macworld's buying advice

If this product was bundled as an add-on to Stuffit Deluxe it would be worth having. However, at a shade under £100, it's limited for the price.

Chris Leat

Multimedia 3D-Web app

Director Studio 8.5

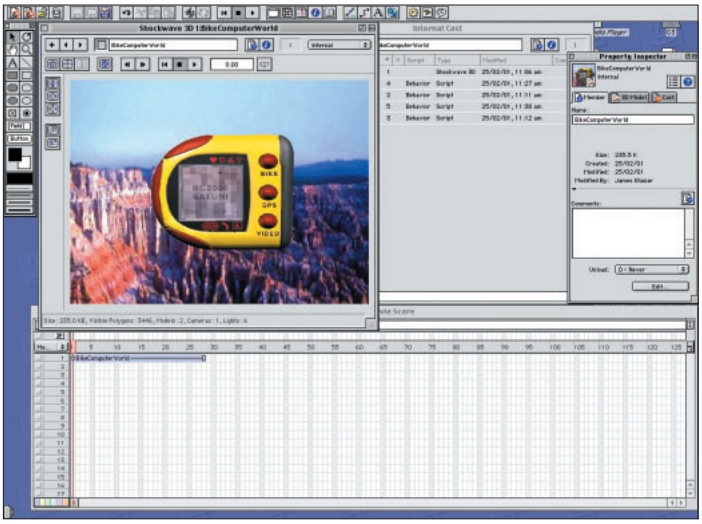
Publisher: Macromedia (01344 458 600)
www.macromedia.com

Pros: Over 300 3D behaviors; around 800 new 3D Lingo commands; RealVideo and RealAudio support; Flash 5 scripting.

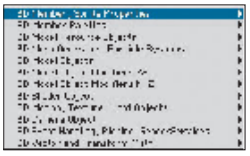
Cons: Third-party support for .W3D format.

Min specs: 250MHz PowerPC with recent 3D-graphics card; or a 300MHz G3 or later; Mac OS 8.1; OpenGL 1.12 or later; 64MB of RAM; 8MB of video RAM.

Price: TBA



Old and new
While Director's interface hasn't changed much (left and below, top), version 8.5 does include over 800 Lingo commands (below, bottom). Macromedia has also teamed-up with Intel to provide improved cross-platform 3D-Web support that is tailored to the end-users machine and bandwidth.



With the release of Director 8.5 Shockwave Studio in June, Macromedia has joined forces with Intel to bring full-motion, scalable, cross-platform 3D to the Web.

Macromedia and Intel claim to have partnered with over 40 companies for the release of add-ons and technologies, which include 3D modelling, texturing, animation, hardware-accelerated video, real-world physics, and facial animation.

Taking advantage of Director's powerful Shockwave player, with over 200 million users, and Intel's Internet 3D Graphics software, these two giants may pull-off 3D Web-design – unlike early 3D technologies, such as VRML.

Real support

There are no major changes to the user interface. However, this release does include some useful goodies – for instance, support for RealVideo and RealAudio streaming from within Shockwave content, and full compatibility with Macromedia's Flash 5 technology.

Also featured is support for both TCP, and the faster UDP Internet networking-protocols for real-time multi-server Internet gaming. Version 8.5 supports server-side scripting, and the number of simultaneous users on the Multiuser Server has been upped to 2,000.

These features are all welcome, but what's most impressive is the support for Intel's Internet 3D Graphics software. Multi-Resolution Mesh lets developers create a single high-resolution model, and allows elements of the model to be removed as needed. So, for machines with unaccelerated graphics, less detail will be drawn on screen. Also, less polygons will be used, and shading will be a lower quality.

It further optimizes each user's experience through advanced streaming and compression. Before a 3D model is downloaded, the user's hardware and bandwidth are taken onto account, and the file adjusted. For instance, if the client machine has a high-end graphics card, the server will send more detail.

It also features Bones and keyframe animation. This allows animations to be downloaded over low bandwidths. It creates bones inside a character and then creates real-time animation by transmitting just the bones' data points, the movements associated with it and the instructions for making the model move. This speeds downloads and reduces development time.

Particle system effects offer another element to the animation possibilities. It's easy to add things such as smoke, fire, explosions and so on.

Another option is Cartoon Rendering. This offers a traditional animation look to 3D-modelled characters and scenes. A technique like this is now used at Disney to make 3D models, such as Tarzan, appear as a more traditional animation.

All this is possible through the high-performance rendering engine produced in collaboration with Intel. Before you start to shout, despite Intel's involvement, all the 3D features are totally cross platform. This makes it the only 3D-Internet environment to run on Mac and Windows without any complicated browser requirements.

Using your existing 3D application, (Director and Intel claim all major 3D applications will support their new .W3D file format) – for example, 3D Studio Max – you can create models, textures, and animations. Then using the Shockwave 3D Scene Exporter for 3D Max, you then import your content straight into Director for added scripting and interaction.

To take advantage of Intel's 3D Graphics software, Director Studio 8.5 includes over 800 Lingo commands and a great selection of built-in 3D behaviors – including lightning effects.

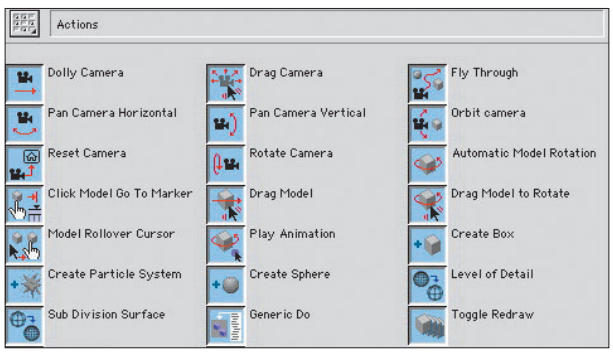
Macworld's buying advice

Macromedia Director has played a background role lately when compared to Flash technology. However, not so long ago, Director was *the* killer Web app. Alongside the then-buggy Java, it brought interactivity to a static Web.

With the powerful features of the JavaScript-like language introduced in the latest release of Flash, developers can now achieve Web and multimedia functionalities that used to be reserved for Director alone. Until recently, the power of the two technologies looked fairly comparable. Ironically, the 2D Flash community has been one of the strongest advocates for bringing 3D to the Web. In the end, with the introduction of Intel's 3D Graphics software, Director's more powerful player had to come out as the obvious winner when compared to its little brother, the Flash player. Ultimately, if you're a serious developer you'll need both of these applications in your toolbox.

Director Shockwave Studio 8.5 will be a must-have upgrade, whether you're a 3D designer wanting to take your content to the Web, or a multimedia designer wanting to take advantage of the latest cutting-edge, multi-platform and multi-publishing technology.

Johan Lopes



Effects library
Director's extensive Library includes camera movements and 3D objects.

X out of ten*

** Well, 8 out of ten… for now*

It's here. It works. It looks great. It's Aqua. It's Unix. It's all-new, but it's still the Mac that we know and love. It feels both familiar and unfamiliar. Crucially, it's missing features and optimized software right now. But, it is more stable and should be faster soon. It's Mac OS X, and we like it.

By Simon Jary & David Fanning

After nearly a decade of writing about Apple's attempts to develop a whole-new, next-generation OS – failed projects' code-names include Pink, Copland, Gershwin and Taligent, among others – it seems weird to be able to say that "OS X is now on sale".

Not only is the 'X' pronounced '10', Apple has officially titled the product "OS X version 10.0". Although X is really a 1.0 release, calling it 10.0 will make it easier to distinguish updates (OS X 10.1, 10.5, etc). But it is definitely worth remembering that OS X is version 1.0 of a new product, not version 10 of an established one. As such, it is missing some features, is incompatible with some software, and marks a fairly radical change from what you're used to.

That said, OS X is undoubtedly the future of the Mac. Moving to Windows is not an easier option, because that too is due a similar upheaval with Windows XP. Mac OS X has been designed to be easier to use, more robust and faster than the current Mac OS (and, of course, Windows) – three extremely good reasons to make the leap, if not now, then some time this year.

[We tested Mac OS X on a brand-new 466MHz Power Mac (PM) G4, a Titanium PowerBook G4, a 400MHz blue-&-white PM G3, and a 300MHz beige PM G3.]

Easier to use

When you look at these screenshots or try-out Mac OS X for the first time, you're not going to believe us when we say that the new operating system is easier to use. Novices may even learn OS X faster than experts who have been using the Mac since the mid-1980s. Mac pros may initially find using X a bit like riding a recumbent bicycle with the handlebars to their sides rather than up-front.

Apple has made navigation more straightforward; although the way we're forced into the X organization is initially rather off-putting. The new Finder (see page 76) is now separate from the desktop. It's a customizable window with three different views – it even has a back button, just like a Web browser's. In particular, the new Column view is a fantastic advance. You can scroll through nested folders until you reach the document you're after. Click on the file, and – if it's an image, PDF, sound or QuickTime file – it appears as a fully fledged preview. Forget the tiny picture icons that you get with programs such as Photoshop – these previews show you exactly what that document looks like, with file info displayed beneath. Better still, sound files and movies actually play right there in the Finder window.

Each desktop window has a customizable toolbar at its top (see page 76). You can click on toolbar icons (or just titles, if you wish) to take you to your favourite disks, applications and servers.

Ever moved or copied items to the wrong folder? OS X features an Undo function and ⌘-Z keyboard shortcut.

The Apple Menu has been quite radically changed, although not as much as first feared. The new place to store aliases, files and apps is the bottom-of-the-screen Dock. The Dock (see page 78) takes some getting used to. At first, it'll have you wishing for the old Applications Switcher and Apple Menu, but over time its photographic icons become more familiar. Keep the Dock hidden, as this gives you more screen space and stops graphic redraws in Classic. Shift-click a Docked app, and the program you're currently in will be hidden. Control-clicking or click-and-holding a Docked folder reveals a list of everything inside.

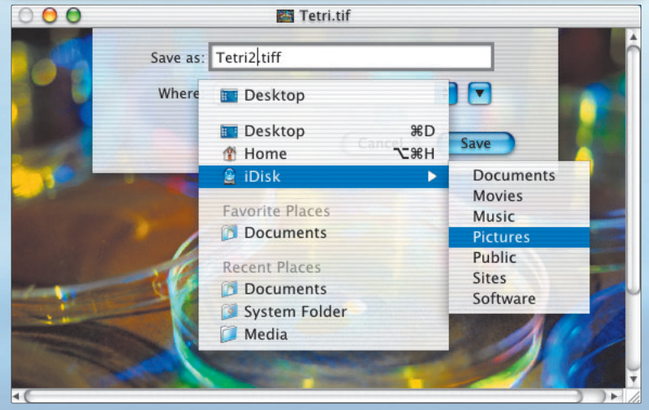
OS X is too heavily biased in favour of multiple users. Most Macs are used by a single person, but OS X wants everybody to be a 'user' rather than the owner. This leads to some duplication of folder names (there are several "Library" and "Document" folders, for instance), which is likely to confuse you at first.

Overall, navigation is easier. But the ability to pare down some of the directories would have made getting used to Mac OS X a lot easier. Prepare yourself for at least a few days of bewildered frustration in this regard.

New Macintosh operating system

Mac OS X

Manufacturer: Apple (0800 039 1010) **www.apple.com/uk**
Pros: Unix core makes X much more stable and sophisticated than previous versions; protected memory; pre-emptive multitasking; multiprocessing support; Classic works well; eventually easier to navigate than OS 9 when you get used to it; Aqua interface; you'll have to switch eventually; updates will fix problems.
Cons: Missing some key features on launch, though these should be added within weeks via Apple's free Software Update; Network icon is confusingly useless; still a little slow; flimsy manual is insufficient; little software Carbonized right now; hardware peripheral drivers currently of limited use in OS X.
Min specs: PowerPC G3 or G4 (except original PowerBook G3); 128MB RAM; 1.5GB disk space.
Price: £99 (including VAT) **Star Rating:** ★★★★/8.1



More robust

You wouldn't know it, looking at the pretty Aqua user interface, but Mac OS X is built on a rock-solid Unix foundation. Unix is the computer platform favoured by banks, universities and governments. It's a mature, but modern, industrial-strength computing standard. Apple has made the brave decision to kill all the old legacy code that has built-up like barnacles since the first Mac operating system in 1984. This new but tried-and-tested architecture is what makes OS X so much more stable and speedy.

Memory Under OS 9 and earlier, a crashed program required you to restart your Mac – if it hadn't already frozen your entire screen. OS X's Protected Memory isolates applications in their own memory space – so if one crashes, OS X shuts down just that offending application; letting you continue to work without needing to restart your Mac. In addition, X's Virtual Memory Manager automatically allocates exactly the amount of RAM needed by each non-Classic application.

Faster

Despite Apple's hype that OS X runs faster than previous versions, we found this initial release rather sluggish in places. The multicoloured spinning disc that replaces OS 9's ticking wristwatch is on show too long. However, X boasts some advanced features that will definitely save you time.

Intensive operations in applications running on OS 9 (and earlier) would often hog your computer until that job was complete. While you could run more than one app in 9, this multitasking was merely co-operative – meaning that one program could take as long as it wanted at a task, and all the others would have to wait in line. X's Unix architecture allows for something called 'pre-emptive multitasking', which means that you can give priority to your primary application, but yet still work in other

Aqua's neat feats

Mac OS X's bright-blue new user interface, Aqua, makes all other computing platforms look drab and dowdy. But Aqua's not just beautiful 3D shadows and gentle pulsing. It takes even mundane dialog boxes, and makes them neater and more responsive.

For example, the Save dialogs are no longer separate windows. They're now pull-down sheets that are attached to the windows they're related to. You can leave them hanging there if you want to do something else, and you can have more than one open at the same time.

In the screenshot above, we are saving an image to the Pictures folder of an iDisk – all without having to open a separate window. Neat. Aqua gives Apple as luscious a look for its operating system as it has created for its iMacs and other computers.

page 74

Preferred users

Forget about Control Panels in the Apple Menu. OS X's System Preferences are accessed via a Docked icon. Each person who uses the Mac can set their own preferences, and customize the display to their liking.

programs in the background. This is a real boon.

Going back to the stop-start world of pre-OS X is suddenly infuriating. In X, you should never have to watch a progress bar again. Of course, like the electric-typewriter's automatic return, this new ability to work continuously – and with fewer crashes – could have RSI-aching and eye-drying effects for Xers who don't allow themselves some time away from their Mac.

Previous to OS X, specially optimized programs could take advantage of more than one processor in a Mac. This level of multiprocessing (MP) was beneficial to those apps (Adobe Photoshop and Cinema 4D XL, for example), but had little-to-no affect on any others. X offers built-in support for dual-processor Power Mac G4 computers. One G4 can run a complex image transformation, while the other renders an iMovie effect, for example. Furthermore, in X, all applications benefit from the higher performance a second processor offers.

Software compatibility

If you remember the switch from System 6 to System 7 (1991), the release of Mac OS 8 (1997) and the move to OS 9 (1999), you'll be prepared for software incompatibilities. The jump to OS X makes the moves to 7, 8 and 9 look like hops, skips and bounces. OS X is a totally new Mac operating system, built from the ground up rather than tweaked and enhanced like those mentioned above. Software incompatibilities are guaranteed.

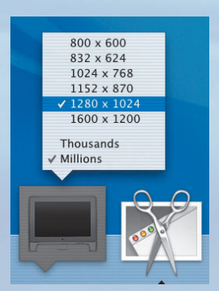
That said, Apple has prepared us – and software developers – for the change by including many of those incompatibilities in OS 9.1, out since January.

OS X will run your old applications, as long as they run in this latest version of the pre-X Mac operating system. If you've already upgraded from OS 9 to 9.1, you'll know that some programs don't get on so well with it. As 9.1 is still built from the same code base as 9 (effectively, the same code as 7 and 8 as well), it should be pretty easy for third-party software developers to fix these problems.

On OS X machines, these 9.1-compatible applications run in the Classic environment. Unfortunately, Classic apps cannot take advantage of OS X's modern features – such as protected memory and pre-emptive multitasking. To really benefit from OS X's more stable and higher-performance architecture, programs must be optimized. Apple calls this program-rewriting process "Carbonization".

In addition to Carbonizing OS 9 apps, developers can write native OS X code in a new programming language called Cocoa. While Carbon combines earlier Mac OS compatibility with native functionality on X, object-oriented Cocoa enables a more rapid development of Mac OS X applications.

Apple has already Carbonized iMovie and iTunes. It has also released a preview of a Carbonized AppleWorks. Other companies are having to play catch-up – see page 80 for more details. Running your non-optimized programs in Classic mode is a little slower than under OS 9.1 on a non-X Mac. You must also install your fonts in X's Library and Classic's System Folder. X will live up to its speed claims only when your favourite apps are Carbonized.



Back in control

Although the Control Strip has gone (losing some quick functionality), a few of the Dock's icons still allow you to change settings without opening other windows.

Hardware compatibility

Another switching headache is driver-compatibility for your hardware peripherals. Most printers, scanners and input devices (with the exception of most FireWire hard drives, thankfully) require specific drivers to be supported by OS X. Laser printers are mainly OK. But supported inkjets – for instance, some Epson and most HP inkjets – will be able to print, but won't offer all the advanced options in X. Supported printers do keep all their options when you're in Classic mode, but unsupported printers won't print at all. See our list of supported devices at **www.macworld.co.uk/osx**.

Epson, HP, Canon, Umax, Lexmark, Xerox, etc, expect to release X-friendly drivers in the coming months. Agfa, for example, has announcing X-supporting scanning software in the third-quarter (that's July to September). Any DV camcorders supported by iMovie will be supported by the X version of Apple's consumer video editor.

Missing features

Mac OS X is still a work in progress – a Beta 2, if you like. To its credit, Apple has publicly stated that this initial release of OS X (code-named Cheetah) is for early adopters and developers only. This summer's X update (code-named Puma) is the more likely real public release – and the one you should really wait for, unless you're a real Mac addict.

The most significant missing feature is the ability to burn CDs or DVDs in X. This is pretty embarrassing to Apple, whose current marketing "Rip, Mix and Burn" campaign is all about iTunes and disc recording. Right now, OS X is also unable to playback DVDs. While disappointing, Apple was right to hit its deadline and fix bugs in the coming months, rather than delaying X again.

Double-clicking and some drag-&-drop niceties don't function as well as they should. And some aspects of networking require workarounds (see page 78). Apple will use its Software Update engine to roll out the many required bug fixes and feature additions for free. CD-burning and DVD support are expected sometime in April.

Macworld's buying advice

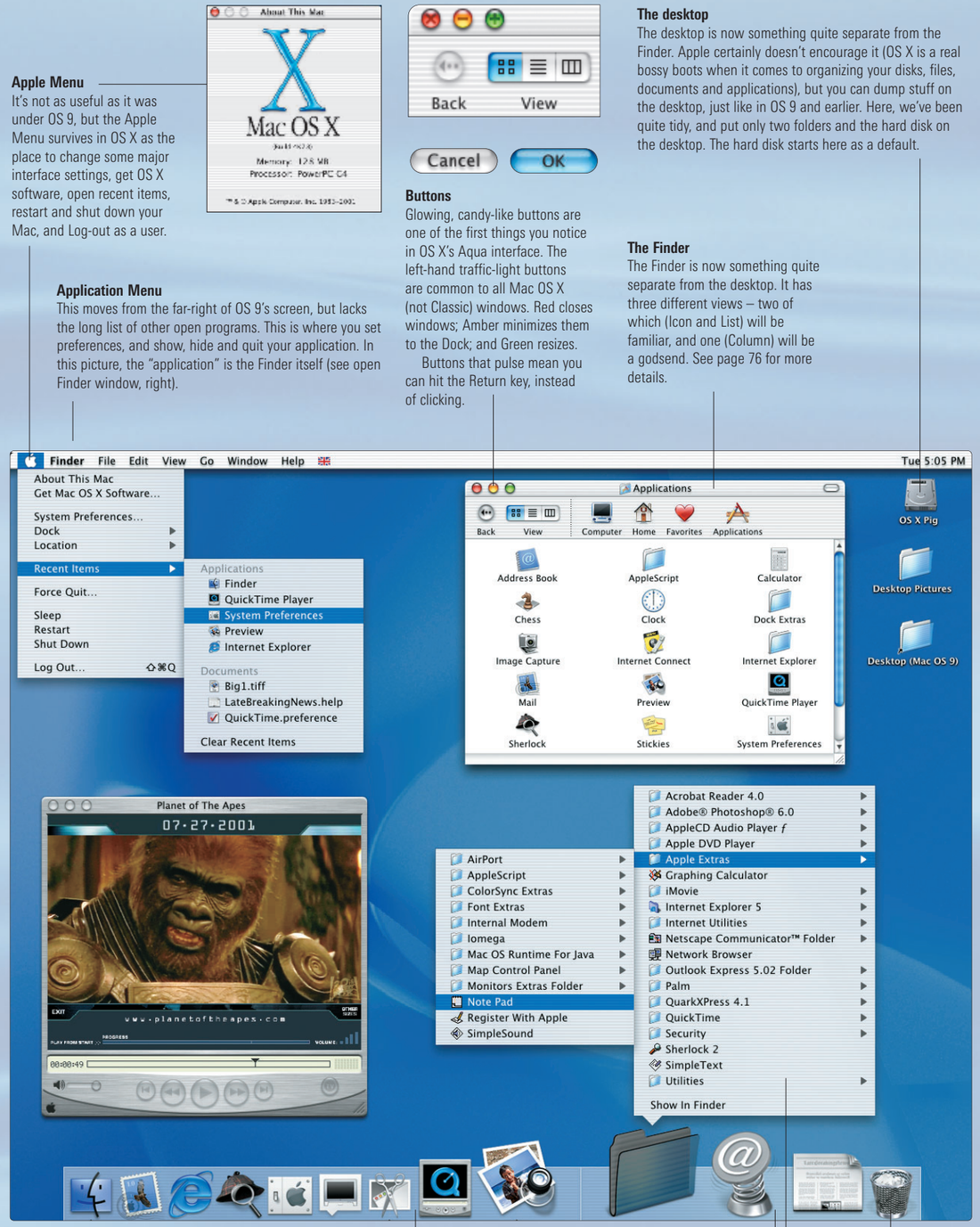
For all its Unix strengths and all-new code, Mac OS X is still a Macintosh to its fundament. Aqua is recognizably a Mac interface. Classic works, and you can always reboot to the cosy, dated world of OS 9.1 if things get tricky.

The 30-page user manual doesn't even scratch the surface when it comes to helping you out on your journey of understanding. Watch out for *Macworld's* Mac OS X Missing Manual series later this year.

Apple is reliant on third-party developers to Carbonize their software applications and release X-friendly peripheral drivers. Once the optimized apps and drivers are released (and any upgrades must be easily affordable, please!), Mac OS X should really fly off the shelves.

Until your favourite apps are Xized (and certainly till after the major bug fixes), it's worth waiting before switching Mac sites wholesale to X. But if you can't wait till then, we can happily inform you that Mac OS X is both ready for work and on-sale now.

Macworld's Star Rating is bound to climb as software and drivers are optimized, bugs fixed and wrinkles ironed out. Readers would be better off waiting till summer, or had better get used to frequent switches back to the 9.1 start-up option. However, we soon hope to be able to recommend Mac OS X to one and all. The future really does start here. **MW**



Apple Menu
It's not as useful as it was under OS 9, but the Apple Menu survives in OS X as the place to change some major interface settings, get OS X software, open recent items, restart and shut down your Mac, and Log-out as a user.

Application Menu
This moves from the far-right of OS 9's screen, but lacks the long list of other open programs. This is where you set preferences, and show, hide and quit your application. In this picture, the "application" is the Finder itself (see open Finder window, right).

Buttons
Glowing, candy-like buttons are one of the first things you notice in OS X's Aqua interface. The left-hand traffic-light buttons are common to all Mac OS X (not Classic) windows. Red closes windows; Amber minimizes them to the Dock; and Green resizes.

Buttons that pulse mean you can hit the Return key, instead of clicking.

The desktop
The desktop is now something quite separate from the Finder. Apple certainly doesn't encourage it (OS X is a real bossy boots when it comes to organizing your disks, files, documents and applications), but you can dump stuff on the desktop, just like in OS 9 and earlier. Here, we've been quite tidy, and put only two folders and the hard disk on the desktop. The hard disk starts here as a default.

The Finder
The Finder is now something quite separate from the desktop. It has three different views – two of which (Icon and List) will be familiar, and one (Column) will be a godsend. See page 76 for more details.

Aqua on X

Thank the lord you don't have to be a computer programmer to operate this industrial-strength Unix operating system. Apple covers up the hard-as-nails Unix architecture with its sweetest user interface yet – and the first major overhaul since System 7. Some of your favourite shortcuts and mouse journeys are gone, but there's a whole new set of productivity enhancers to get the hang of and, later, use as if they were second nature.

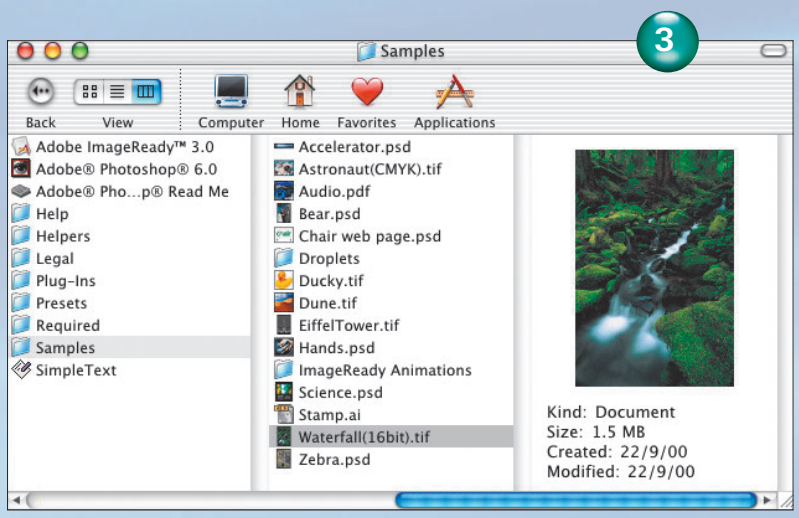
Dock's Magnification effect
When you've stuffed your Dock with tons of icons, it will eventually expand to reach the screen edges. Add even more, and the Dock will shrink to fit. When the Dock gets really small, you'll need to turn on its Magnification effect. Pass your cursor over the Dock and the icons increase and decrease in size like a digital Mexican wave.

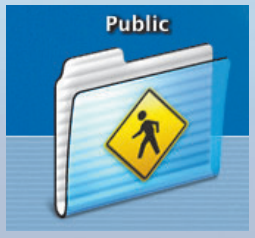
Trash
When you put stuff in the Trash, the icon fills with paper.

Dock pop-ups
Icons in the Dock don't just look pretty, and give you easy access to commonly used items (applications, files, Web sites, folders, etc), they also offer visual, text-based feedback. If you control-click a Docked folder, you can see its contents hierarchically. Here, we're selecting the "Applications (Mac OS 9)" folder, and selecting the Note Pad, which will launch under Classic.

More X, page 76

The easier-to-navigate new Finder – Time to get organized





Sharing files with other users is now a lot more structured under Mac OS X.

Users of the same Mac will share files with each other via the Shared user folder on the computer's hard disk.

Other users will be able to access your Public folder – unless, of course, you turn off File Sharing in System Prefs. Copy those files you wish to share to your Public folder, and make sure you've turned file sharing on.

You can also use your iDisk's Public folder to share stuff via the Internet.

For more on networking your OS X Mac, see page 79.

The Finder was always a strange place in OS 9 and earlier – it had a split personality with the desktop. Mac OS X's Finder is a more distinct place, but, like the Dock, will take some getting used to. The Finder – and OS X's file structure in general – certainly had us scratching our heads at times, and we'll try our best to smooth your path of understanding.

The new Finder is actually a window, and you can have more than one open – just click ⌘-N to open a new one. You can have one Finder window show you the contents of your hard drive, and another display a connected disk, for instance. X's new Column view should save you having too many open.

As you can see from the Finder's **title bar** (**1**), there are several different "areas" within OS X – where previously you had to imagine just your hard drive(s). In this example, we've customized the title bar (see page 79) to give us quick and easy access to a lot of hard-drive areas. The default set includes just Computer, Home, Favorites and Applications.

When you log-on after installation, Mac OS X creates a "Home" for you as a "user". If your Mac is used by more than one person, each can have his or her own Home. You can see Home's icon in the title bar; you might also put this in your Dock.

The **Computer** is what you would previously have called the Finder/desktop. Click on its icon, and you'll see all mounted drives and a Network icon (**2**). Ignore the **Network** icon. Despite looking like one of the most significant parts of OS X, it doesn't take you to your network (you should add the similar-looking "Connect to" icon to your title bar for that, or use the Go menu). Eventually, we got Apple to admit that you'll probably never need to use it. Network apparently concerns something called NetInfo. So can you get rid of this teasing icon? No. Maybe Apple has big plans for it in some enterprise or education setting. But, for *Macworld,* the campaign to let users rid themselves of this confusingly useless Mac OS X icon starts here…

Click on your hard disk, and you'll see a bunch of folders that are available to all that Mac's users, including: an OS X "System" and OS 9.1 "System Folder"; an "Applications" folder; a "Library" for fonts, etc; and a "Users" folder. This is what you'd normally use as the top-level of your hard disk. However, OS X is so focused on multiple-users that it prefers you to store items not here but in your "Home", found inside the Users folder.

Installing fonts is easy, but is confusing at first, as they're put in this Library folder. The System also has a Fonts folder in its own Library, but this is for system fonts only. On top of that, you can put fonts in the fonts folder of your Home's Library. OS X suffers a little from its own strict structure – with Libraries and Documents folders popping up all over the place.

Until all your favourite software is Carbonized for X, you'll still be relying on Classic's 9.1. Remember to put all your fonts in the System's Folder's Fonts folder, as well as in the Library (whichever one you choose).

Home is where most of your stuff will reside, whether you like it or not. Single users can put all their stuff in those folders (mentioned above) on the first-level of the hard drive – just as they did previously. But OS X's Home is meant to be a more structured place, and X is all about getting you better organized. Obviously, a more direct (and less fraught) way to get "Home" is to click its house-like icon in the title bar.

Once you're Home, you're free. Things get a lot more familiar from this point. And single users would be better off going straight here, as OS X intended. The first person to log-on on installation becomes the default Administrator, with access privileges to make changes to the first level of the hard drive.

Apple has decided for you that Home is where you'll store digital pictures, audio files, movies and other documents, and has created folders for them here already. This is clearly aimed at helping out consumers, and stopping the Documents folder getting too crowded. Old pros will probably rename these folders for their own requirements.

In Mac OS 9 and earlier, you can **view** windows as Icons, Buttons, or List. Now, in Mac OS X, there's Icon, List and Column views. One grumble: if you type a letter in the List view, X will highlight the first file beginning with that letter, but not scroll down to show you. Please fix this, Apple.

The new Columns view (**3**) is a real treat, and easy to navigate via the scroll bar or your keyboard's arrow keys. The inline previews (here, it's a TIFF image) show a lot more info than we're used to. You can even play sound and QuickTime files from within this Finder view. It's a real screensaver – although Mac OS X's photographic screensavers are pretty amazing, too.

page 78

Big and bouncy – OS X's magical Dock

The Dock is one of Mac OS X's big new things. It's also one of Aqua's Mac alterations that will make you smile then tear your hair out to start with.

In the screenshot below, you see the Dock at the bottom of the screen. The Dock's **Magnification** effect shows the folder's icon enlarged in comparison to neighbouring icons as you pass your cursor over it. Clicking the Control key shows the folder's contents in semi-transparent **pop-up menus**.

Note how the icons next to it – in this case, the Photoshop, Help, Web-page and Internet-Explorer file – also expand to produce a ripple effect in the Dock. Magnification can be turned off in the Dock's preferences. It's pretty much a gimmick, but will appeal to novice users… and X show-offs.

Another flash gimmick is the **genie effect** that shrinks and squeezes open windows and files when you hit the amber Minimize button.

The Dock gives you instant access to your favourite apps, disks and documents. Much like the new Finder, the Dock allows you to better organize your Mac content. You simply drag-&-drop your apps, folders and files into the Dock. You can even drag your favourite Web-page links directly from Internet Explorer.

The left-hand side of the Dock stores application icons (including Classic ones); the right side, everything else.

The Dock expands and retracts as you add and subtract items, until it reaches the screen's edges – at which point the Docked icons shrink to accommodate additional items.

Docked icons offer **visual feedback**. If you have email, Mail's franked-stamp icon, for instance, tells you how many new messages are on your mail server.

To save on memory and screen space, you should make the Dock hide itself when you're not using it.

The Dock may take some getting used to, but then so did the Control Strip, Apple Menu and Applications Switcher that it replaces. Give it time, and you'll grow to appreciate it. If the Dock just winds you up, hide it and navigate files and folders via the Finder (see page 76).

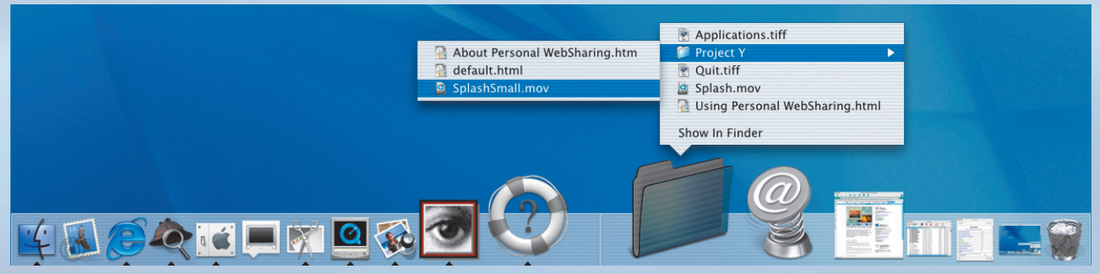
The Dock's prefs allow you to decide its size and the scale of magnification. When you launch apps from the Dock, they **bounce** while they're starting up. This jovial feature soon grows tiresome, but thankfully it can be turned off in the preferences.

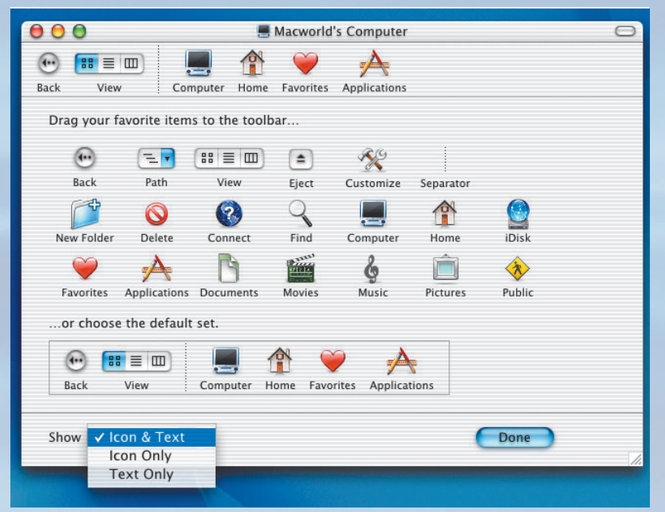
The tiny **black triangles** underneath the Dock's icons point out which apps are currently active.

Navigate along the Dock by tabbing while holding down the ⌘-key.

Image-file icons show up as previews, and QuickTime movies actually keep playing while Docked.

Throw an icon out of the Dock, and it goes up in a puff of smoke – another gimmick, but a nice touch.





Third-party X icons

As with Mac OS 9, you can change folder and file icons with specially created third-party ones. We downloaded these X-ready icons (including characters from Futurama) from ***www.iconfactory.com*** *and* ***www.xicons.com****. It's only a matter of time before there are thousands of Star Trek and Darth Vader icons to choose from.*

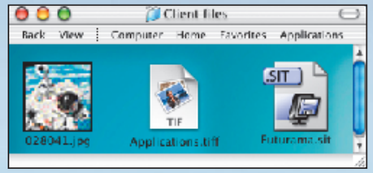
Customizing Mac OS X

Apple has never been too keen on its users customizing their Macs – at one time, the only thing it would let you do was stick one of its multicoloured stickers on your Mac's side. Apple flirted with Themes in Mac OS 8 and 9, but steered users to its own (admittedly often odd) selections. I guess Apple reckons it's spent so much time making the Mac good-looking that it's insulted when we muck-up its style.

As Mac OS X looks so stunning, it's a cert that Apple has done its best to stop you altering its colour scheme beyond the Aqua and Graphite choices. There's a bunch of fairly lairy desktop patterns, alongside a few animated photographic screensavers.

To make your Mac your own, Apple has made it very easy to change the size, order and titling of Finder windows – a big improvement on the Public beta. The main screenshot here shows the range of options available to you. If you think it looks familiar, then you're right – it's very like customizing Microsoft's Internet Explorer 5's titlebar (just with less colours to choose from).

You can increase the size of icons to sizes that make OS 9's buttons look like pins. And Apple allows you to set a colour or picture for folder-window backgrounds (see below).



X installation tips

Before you start to install Mac OS X you need to be running OS 9.1. The full 9.1 CD is included in the box, so that's no problem. If you weren't already running OS 9.1, it's worth trying all your applications and control panels before you make take the next step. If you need to upgrade anything to ensure it is OS 9.1 compatible, do so before you upgrade to X.

We always recommend backing up before any System upgrade, but with Mac OS X it's even more important. A problem in the upgrade process could conceivably require a hard-disk reformat. If you have a problem booting in 9.1 once you've upgraded, external backup devices might not work with Mac OS X. This is another reason for making sure you keep your work safe with a backup.

As OS X is a real matron when it comes to tidying up your files, it's good policy to take this time to throw out any junk from your disks.

During the installation process you will be given an option to either set-up an iTools account or set your current iTools in the preferences. Make sure you know your iTools login and password before you start.

Otherwise, think of options for your login and password before you start. Remember that your login will also be your mac.com email address, so make sure it makes some sense, or you'll end up with something really stupid like discoduck@mac.com as your email address. The whole process takes about 20 minutes, or a little longer if you elect to reformat your hard disk before you start.

Partition for speed

Reformat? In our tests, (and confirmed by several readers), we noted that partitioning the hard drive speeds up Mac OS X later.

Clean install 9.1 from the new CD on the second partition, and set 9.1's extensions to Base. The first volume must be the OS X one – otherwise it won't work.

Installing Apple's updates as they are released should also up X's initially sluggish speed.

Printing from X

Printing in OS X is fairly straightforward, so long as your printer is supported. Apple has built-in support for a range of inkjet models from HP, Epson, and Canon, but not every model is supported (for a full list, see www.macworld.co.uk/osx**).**

The OS X drivers are not exactly the same as the printer's own OS 9 drivers; they're really an interim measure. Depending on the printer you have, you'll see a cut-down set of features. Basically, there isn't much more than paper size and type in the settings. Things like head cleaning, head alignment and other utilities won't run in X.

If your printer is supported, you will still be able to use it in the Chooser in the Classic environment. Classic apps you should get full functionality of the drivers, with the exception of background printing.

Laser printers are much better supported, as most of them use the LaserWriter driver with a PPD. This works in pretty much the same way with OS X. You can connect via AppleTalk or, if the printer supports it, via TCP/IP.

Adding a printer now doesn't involve the ancient Chooser. Instead, there's a utility to add them called Print Center. The Print Center lives in the Applications folder, within the Utilities folder. Don't worry about losing it – if you try to print in any application it will trigger the Print Center (if necessary) to let you select your printer.

Mac OS X's Print Center will automatically select a default printer for you, as well as allow you to change it. You still need to visit Page Setup before printing, and we found that Mac OS X refused to remember some printers' settings, which gets frustrating.

So if you have a laser printer or a USB inkjet printer, there's a good chance that printing won't be a problem.

Over time, more manufacturers will release OS X printer drivers, so keep an eye on *Macworld's* Web site to find out when.

Network X: cross connection

Networking your OS X Mac is a rather different experience than with OS 9. First, you should enable File Sharing over TCP/IP on any machine you'd like to connect to. It should speed connections and allow your OS X machine to connect to OS 9 machines. You can access OS X machines using AppleTalk, but OS X machines can't connect to other machines unless they use AppleTalk over IP.

To turn File Sharing on in X, you need to go to the System Prefs and open Sharing. Then you turn on File Sharing, and, if you want to, Web Sharing (**1**). There are also options to allow remote login from other OS X computers, and to allow FTP access from any computer.

Connecting to another File Server is a bit weird compared to OS 9. There's no Chooser to go to, so you might think the Finder would be the obvious place – wrong again (see page 76). Actually, the best way to connect is the hit ⌘-K, which brings up a window showing the local network (**2**). Click on the Local Network icon, and you should see all the other Macs on your network.

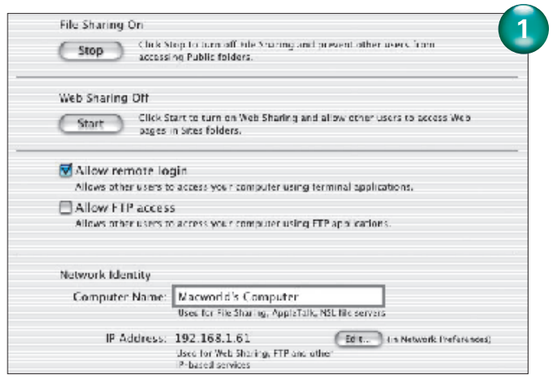
Sharing your own files is also less intuitive than in OS 9. The only folder you can network-share is your Public folder. Unlike previous versions, OS X won't let you share your whole volume, which is frustrating but understandable in a nannying sort of way.

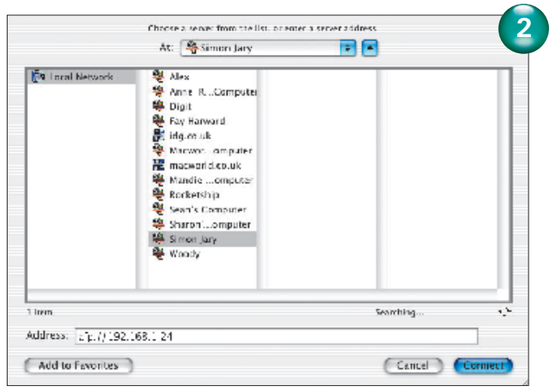
The only way to share your whole machine's contents is to access the Mac OS X machine by logging-in as an Administrator, rather than as a Guest. Obviously, setting up everyone in your office as administrators isn't practical, so this does pose a problem.

One solution is moving your working folders to your Public folder. But, you can't copy all the folders in your Home folder to your Public folder. Your Desktop and Library folders must be in the top level of your Home.

Even though you can set access privileges for folders outside of your Public folder, guest users still won't be able to access them. This isn't a bug; according to Apple it's a feature. Basically, you must learn to arrange the contents of your disk in an OS X fashion. Resistance is futile, and any attempt to get your hard disk arranged like it was in Mac OS 9 is doomed.

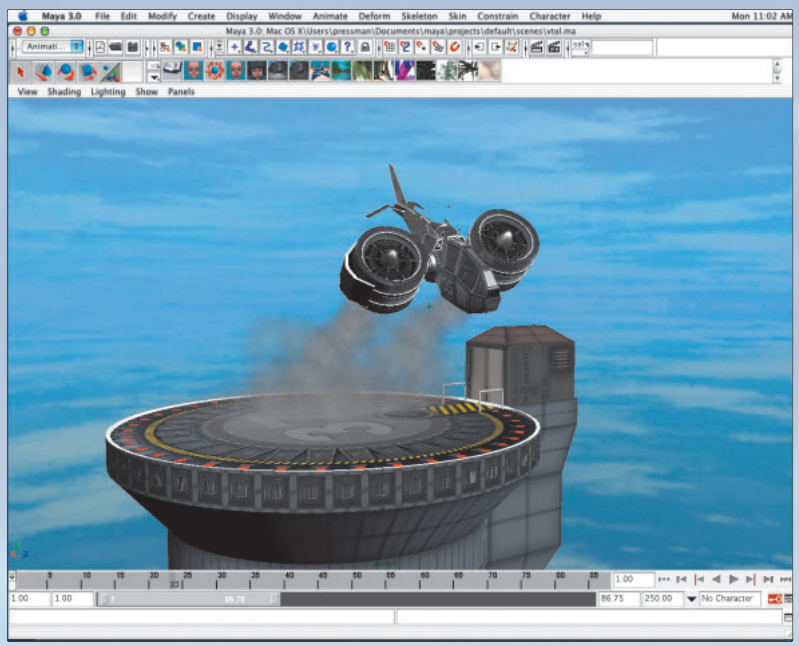
Also, try your best to ignore the globe-like Network icon (except in System Prefs), as it is useless now.





Software catch-up Page 80

The waiting game – X benefits delayed till software ships



3D X

Alias|Wavefront will be one of the first companies to offer an X-ready app, when it releases its Maya Complete "between April and June".

Maya (pictured above) is one of the most respected 3D-modelling and animation programs on high-end Windows and Unix platforms.

Its move to OS X is a major coup for Apple, and is an early sign that many more programs will port to the new Mac operating system.

NewTek has released a downloadable beta preview of its 3D modelling application, Maya-rival LightWave 6.5 for Mac OS X. It's the first company to pass the starter's flag with a high-end 3D application.

NewTek's vice president of 3D graphics, Brad Peebler said: "We think that our commitment to the platform is made clear with the strength of the software and the concurrent release."

Applications are crucial to the success of Mac OS X. Major developers have voiced their support for OS X, but Apple's installed user-base of creative professionals need to see them deliver on their promises.

Apple has paved the way with Carbonized versions of its free iMovie and iTunes applications, and a preview of its AppleWorks business suite (see page 22). However, its Final Cut Pro 2 (see review, page 58), which shipped after the OS X launch is not Carbonized.

Apple CEO Steve Jobs predicts an "avalanche of applications" over the coming months. OS X's proper launch begins when it comes pre-installed on new Macs this summer. *Macworld* spoke with key applications developers to check on their progress on the road to X.

Erik Ryan, from the **Microsoft** Mac Business Unit, told us: "The release schedule for Office 10 for Mac OS X is autumn 2001. That's when we'll make the Carbonized version of Office available."

The product is already going through early beta testing, and Microsoft is offering an easy, non-punitive upgrade path. Office 2001 users will be able to affordably upgrade to Office 10 for Mac OS X, and not have to pay full-whack for the new version.

Adobe has revealed its plans to implement OS X support across its product range. "Adobe plans to support Mac OS X native mode in future releases of our flagship products, beginning with Acrobat Reader 5.0," a company statement promises. Adobe has promised native support for OS X in the next major release of Photoshop.

Adobe warns that users running Photoshop 6.0.1 in Classic mode will be unable to acquire images directly from scanners. They are also unable to use graphics tablets, or to open files stored in the OS X desktop folder using the "Open" dialog box.

Adobe will implement OS X support in the next major releases of Illustrator, After Effects, GoLive and InDesign. LiveMotion and Photoshop Elements will both be Carbonized in "future releases". Adobe would not commit to definite release dates for OS X updaters.

Macromedia apps are being Carbonized to run natively in X.

Rob Burgess, chairman and CEO of Macromedia, said: "We are committed to bringing our Web-authoring product line to Mac OS X, beginning with the next release of FreeHand".

FreeHand 10 (see news, page 26) is optimized for X already, and the company has demoed prototypes of Fireworks, Dreamweaver, and Flash running on the new operating system.

Glen Turpin, from **Quark**, said: "Quark stands strongly behind Mac OS X. We are hard at work Carbonizing QuarkXPress. The version immediately after 5.0 – version 5.x with emphasis on the X for OS X – will be a Carbon-native application."

Corel has made a major commitment to its creative applications. It will launch Bryce 5 for Mac OS X in July, and promises CorelDraw 10 Graphics Suite and Corel Painter 7 this summer. KnockOut 2 and KPT 7 are promised in the autumn.

Wolfram Research's Mathematica will ship for OS X in July. Customers who buy the software (priced at £1,190) will get the final X version free when it's released. **Dantz** plans to support X with its Retrospect family of backup software. Retrospect Client for Mac OS X allows OSs 8 and 9 to backup X systems across a TCP/IP network with Retrospect 4.3.

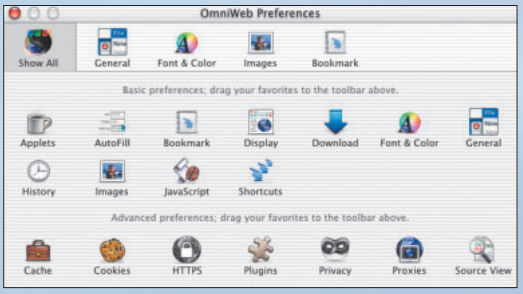
This will be released on April 13 as unsupported beta software. Dantz is working with Apple to deliver a Mac OS X update to the Retrospect Backup application "later this year".

Thursby's DAVE for Mac OS X (cross-platform file-share software) will be available in May. **4D** will supply free X updates of 4D6.5 and 4D6.7, which will integrate with OS X.

Jonny Evans **MW**

FileMaker Pro: Data X

FileMaker Pro 5 for OS X was demonstrated during the London launch of OS X in March. Work on this product is very advanced, with the application integrating an Aqua interface. As you read this, FileMaker sources suggest the OS X version is "imminent" – keep an eye on ***www.macworld.co.uk*** *for news as it emerges.*



Web-browser X

*Mac OS X ships with a Carbonized Preview of Microsoft's Internet Explorer 5.1 Web browser. An alternative is the X-native OmniWeb from The Omni Group (****www.omnigroup.com****). In Macworld tests, we found this Aqua-fied browser to be 25 per cent faster than IE 5.1.*

1 Jet set...go!

A3 and A4 colour inkjet printers assessed and rated

By David Fanning and Seth Havens

2 Consistent colour

Getting great colour-results from your inkjet

By Bruce Fraser

Just about every computer that lives at home is connected to an inkjet printer. This creates a huge market for printer manufacturers and, consequently, the stakes are high. Fortunately for consumers, this means prices are low and quality high. Manufacturers that have effectively perfected photo-quality printing are examining new ways to improve performance and quality. Many of the inkjets we tested boast more features than a Blockbuster superstore, sporting everything from laser-guided head-alignment to 2,880dpi resolution and duplex prints.

This month, Macworld tests the widest

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PHOTOGRAPHY: MIKE LAYE

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Epson Stylus Color 580

The Stylus Color range from Epson is not designed for those not requiring top photo-quality output, but rather for those seeking all-round versatility. The 580 is cheap, but also very slow. Output is surprisingly good, and, although grainy, there was only slight banding – even on plain paper.

Price	**£79**
Contact	**0800 200 546**
URL	**www.epson.co.uk**
Paper size	**A4**
Max resolution (pixels)	**1,440-x-720**
Time to print test A4 page	**9 mins 44 secs**
Value for money	7
Speed	3
Quality	5
Star Rating	★★★/5.3

Epson Stylus Color 680

This model boasts double the resolution of the 580, weighing in at a massive 2,880dpi. However, its output wasn't that much better than the cheaper 580. Lines were plainly evident on both the glossy print and on plain paper. Banding was also evident in the hues of the sunset.

Price	**£119**
Contact	**0800 200 546**
URL	**www.epson.co.uk**
Paper size	**A4**
Max resolution (pixels)	**2,880-x-720**
Time to print test A4 page	**6 mins 40 secs**
Value for money	6
Speed	6
Quality	6
Star Rating	★★★/6.3

Epson Stylus Color 880

For a little more than the 680, the 880 offers faster prints, but at only slightly higher quality. The sunset image shows banding, but not as severe as with as the cheaper model. For the same price, you can buy the Stylus Photo 790, which offers superior photo output. Epson printers are rather ink-thirsty.

Price	**£159**
Contact	**0800 200 546**
URL	**www.epson.co.uk**
Paper size	**A4**
Max resolution (pixels)	**2,880-x-720**
Time to print test A4 page	**3 mins 31 secs**
Value for money	7
Speed	9
Quality	7
Star Rating	★★★★/8.0

Epson Stylus Color 980

Of the Stylus Color range, the 980 makes the best use of the 2,880dpi resolution. Banding is negligible and speed, too, is impressive: it outputted a full glossy page of photographs in just a minute and a half. However, at twice the price of the 880, it will appeal most to speed-conscious consumers with deep pockets.

Price	**£304**
Contact	**0800 200 546**
URL	**www.epson.co.uk**
Paper size	**A4**
Max resolution (pixels)	**2,880-x-720**
Time to print test A4 page	**1 mins 37 secs**
Value for money	6
Speed	10
Quality	7
Star Rating	★★★★/7.7

Epson Stylus Photo 790

The 790 is the cheapest of the Stylus Photo range and offers edge-to-edge printing. It does a good job of printing glossy images almost without grain, but there's banding problems. This isn't severe, but does harm image quality. Despite being cheaper than the other Photo models, the 790 is no slower.

Price	**£159**
Contact	**0800 200 546**
URL	**www.epson.co.uk**
Paper size	**A4**
Max resolution (pixels)	**2,880-x-720**
Time to print test A4 page	**4 mins 16 secs**
Value for money	8
Speed	8
Quality	8
Star Rating	★★★★/8.2

Epson Stylus Photo 890

The photo quality of the 890 was unsurpassed, showing neither banding nor graininess in any part of the test print. Unfortunately, there is a high price to pay for this – in the shape of the worst ink-life of any printer on test. We managed to print just 43 pages of our test sheet before the 890 ran dry.

Price	**£187**
Contact	**0800 200 546**
URL	**www.epson.co.uk**
Paper size	**A4**
Max resolution (pixels)	**2,880-x-720**
Time to print test A4 page	**4 mins 18 secs**
Value for money	7
Speed	8
Quality	10
Star Rating	★★★★/8.2

HP DeskJet 840c

At £89, the 840c is at the cheaper end of the HP range. It turns in an above-average performance on the photographic setting – beating the more expensive 959c on quality – but its print speeds are slow. Neither does it use the latest HP PhotoREt technology – but seems to cope well without it.

Price	**£89**
Contact	**08705 474 747**
URL	**www.hp.com/uk**
Paper size	**A4**
Max resolution (pixels)	**1,200-x-600**
Time to print test A4 page	**6 mins 51 secs**
Value for money	8
Speed	6
Quality	6
Star Rating	★★★★/8.8

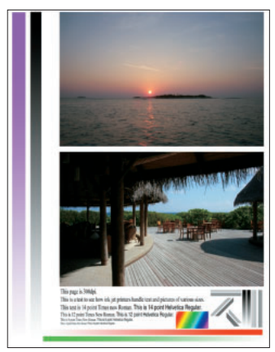
HP DeskJet 930CM

The 930 is designed to complement your Mac in both appearance and bundled software, making the beige versions of the 900 series look drab by comparison. It performed poorly on speed – but its image quality is impressive, with graininess only apparent upon close inspection.

Price	**£149**
Contact	**08705 474 747**
URL	**www.hp.com/uk**
Paper size	**A4**
Max resolution (pixels)	**2,400-x-1,200**
Time to print test A4 page	**9 mins 48 secs**
Value for money	8
Speed	3
Quality	8
Star Rating	★★★★/7.4

Product scores

Bar-chart quality scores run from 0-10, and reflect specific aspects of performance. Star Rating is an overall score, encapsulating these individual scores, plus any other factors relevant to your choice of purchase. Print speed relates to time taken to ouput the A4 page below.



range of inkjet printers we've ever tackled. The key performance yardsticks – speed and quality – were measured, and available features assessed. One of the factors we measured – ink-cartridge lifetime – produced some interesting results, and we now have a good idea of the long-term cost of ownership for each model.

First, let's dispel a number of spurious inkjet-performance stats often peddled by manufacturers seeking a competitive advantage in this crowded market.

Resolution One of the most misunderstood printer-performance yardsticks is resolution. At 300dpi (dots per inch), output will lack the detail of that at 600dpi – that much is straightforward. However, once you start getting into print resolutions above 600dpi, you'll nearly always be printing at a resolution higher than that of your image, which need never be greater than 600dpi.

Epson is the current leader in the resolution arms-race, upping the ante to a whopping 2,880dpi on its Stylus Photo range. Ever tried working with an image of 2,880dpi? It would hog 2.8GB of valuable hard-disk space and take an aeon to print.

Quality An illustration of how higher resolution doesn't necessarily mean higher quality is demonstrated by the Hewlett-Packard (HP) inkjets. If you force them, HP printers can print at 2,400dpi. However, this only means slower printing speeds and no quality advantage over the default 600dpi settings. This is because HP uses its PhotoRET technology to get smooth photographic colours. The results from a 600dpi print on an HP printer are close to a 2,880dpi print from an Epson printer.

To judge our test results, we buttonholed a group of "average users" (our sales department) and also "expert users" (our art department). While inkjets are not entirely suitable for art pros – due to a lack of PostScript capabilities – they are fine for Web and Photoshop stuff.

The standard across the board was extremely high, with even the more-affordable printers capable of high-quality photographic output. There are, though, qualitative differences from model to model.

Speed

Emblazoned across most printer boxes are outrageous claims of how many pages per minute (ppm) can be outputted using the printer inside. Forget it – it's meaningless. This is because print speed can never be measured in absolute terms, as it's affected by so many factors. Not least among these is the Mac that is connected to the printer, and the OS on which it's running. The more powerful your Mac and newer your OS, the quicker print times will be – as it's the Mac that does much of the print-processing. Print speeds also vary on a job-by-job basis. An A4 image, for instance, takes far longer than a page of text. Similarly, a single word on a page takes longer than a full page of text. Guess which of the above three print-job types the manufacturers are likely to use in arriving at their arbitrary ppm numbers.

The *Macworld* test page was designed to stretch the capabilities of the printers to the limit. We used the same G3 to process the print job, which was a 300dpi A4 page including both photographs, text and fine-line patterns – in keeping with the kind of jobs most people will be asking of their inkjets.

Features

In a bid to outdo one another, printer manufacturers are beginning to run out of extra features to add. Because the usefulness of these features differs from user to user, we have simply listed them. The rule of thumb is, if the feature will be of use to you, then it's worth paying that bit extra to have it. If, for example, duplex (double-sided) printing is something that will add to your printer's value, then go for it. The same goes for the host of other features, including the ability to print photo-sized images and auto print-head-alignment.

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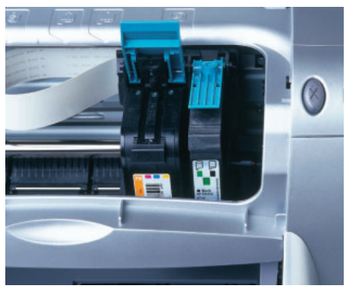


Half empty, or half full?
The 900 series of HP printers offer two sizes of ink cartridge. Both are the same size, yet one contains double the ink. Looking at it another way – the regular cartridge is only half full. The jumbo cartridges may cost twice as much as the regular ones, but at least they print more than twice as many pages.

design | buying advice | specs | scores

HP DeskJet 959c

The 959c uses the same print engine as the rest of the 900 series, but its print quality is not great. Although it successfully avoids banding, the amount of grain makes some images look dirty. The plain-paper setting works fine, but it's slow high-res glossy jobs.

Price	£179
Contact	08705 474 747
URL	www.hp.com/uk
Paper size	A4
Max resolution (pixels)	2,400-x-1,200
Time to print test A4 page	9 mins 39 secs
Value for money	7
Speed	3
Quality	6
Star Rating	★★★/5.5

HP DeskJet 980cxi

The 980cxi is not silver, like the CM models, and neither does it have the extra Mac utility photo-software. On the quality side, the 980 is not noticeably better than the 930, but it is noticeably quicker at printing when it comes to photographic output.

Price	£229
Contact	08705 474 747
URL	www.hp.com/uk
Paper size	A4
Max resolution (pixels)	2,400-x-1,200
Time to print test A4 page	4 mins 35 secs
Value for money	8
Speed	8
Quality	8
Star Rating	★★★★/8.0

HP DeskJet 990CM

The 990CM is HP's top consumer printer, sporting the silver finish and bursting with gadgetry and extras (including automatic cartridge-alignment and paper-type scanning duplex. It also missed top spot on output quality by a whisker. Take the package as a whole, and you're onto a winner.

Price	£279
Contact	08705 474 747
URL	www.hp.com/uk
Paper size	A4
Max resolution (pixels)	2,400-x-1,200
Time to print test A4 page	4 mins 49 secs
Value for money	9
Speed	8
Quality	9
Star Rating	★★★★/8.7

Lexmark Z12

What kind of printer can you get for under £60? Well, the Z12, which is pretty much what you'd expect for the price. Quality is a ropey on plain paper, it's slow and also ink-thirsty. The surprising thing, though, is that its output on glossy paper is actually rather good.

Price	£56
Contact	01628 481 500
URL	www.lexmark.co.uk
Paper size	A4
Max resolution (pixels)	1,200-x-1,200
Time to print test A4 page	7 mins 43 secs
Value for money	7
Speed	5
Quality	7
Star Rating	★★★/6.3

Lexmark Z32

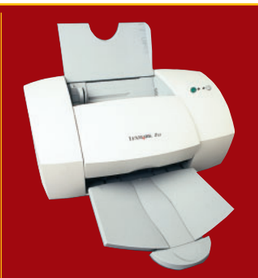
The Z32 is slightly more expensive than the Z12, but there's less grain in its output. Print-quality on plain paper is still poor, but glossy images are much better. It's worth the extra £20, but the Epson 580 or the HP 640c are close competitors on value.

Price	£76
Contact	01628 481 500
URL	www.lexmark.co.uk
Paper size	A4
Max resolution (pixels)	1,200-x-1,200
Time to print test A4 page	8 mins 6 secs
Value for money	7
Speed	4
Quality	7
Star Rating	★★★/6.0

Lexmark Z42

The Z42 is a marginally better printer than the Z32 – and its print quality on plain paper is a little better. However, the quality of output on glossy paper is excellent. It performed well on the ink-life test, printing 145 pages, but was the slowest inkjet on test.

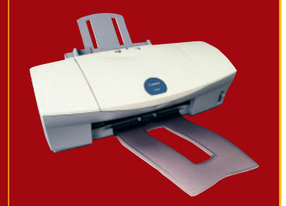
Price	£95
Contact	01628 481 500
URL	www.lexmark.co.uk
Paper size	A4
Max resolution (pixels)	2,400-x-1,200
Time to print test A4 page	10 mins 5 secs
Value for money	7
Speed	2
Quality	7
Star Rating	★★★/5.3



Lexmark Z52

The Z52 is the most expensive of the Lexmark range of printers but still only tips the scales at £135. For the price, quality is impressive and ink-life is reasonable. For a budget printer, it's a good choice – if you don't need top-quality on plain paper.

Price	£135
Contact	01628 481 500
URL	www.lexmark.co.uk
Paper size	A4
Max resolution (pixels)	2,400-x-1,200
Time to print test A4 page	8 mins 35 secs
Value for money	7
Speed	5
Quality	7
Star Rating	★★★/6.0



Canon S450

At £119, the S450 is one of the cheaper models on test. Print quality is acceptable, if grainy. One of its best features is that it has individual ink-tanks. Unlike with multiple-colour cartridges – which have to be replaced when any one colour has run dry – you can simply put a new colour in.

Price	£119
Contact	0121 666 6262
URL	www.canon.co.uk
Paper size	A4
Max resolution (pixels)	1,440-x-720
Time to print test A4 page	7 mins 27 secs
Value for money	8
Speed	7
Quality	8
Star Rating	★★★★/7.7

In a flap
The Epson Stylus Color 680 has a paper-catcher flap that doubles as a protective cover.

Cost of ownership

Nobody expects top-quality colour for free, but the variance in price is great, and is something any prospective inkjet customer should look at. We tested ink-cartridge life by getting each printer on test to output our test page on photocopier paper at the highest quality possible – then printed pages until the ink ran dry. You can view a thumbnail of the test page in the margin on page 86, or download it from **www.macworld.co.uk/testcentre/** – but beware, it's 6.4MB. One thing you should know is that print-head cleaning can use a frightening amount of ink – so avoid it unless it's absolutely necessary.

This is the most comprehensive inkjet test we've ever done, with 23 printers being submitted. Five years ago, there were just half-a-dozen to choose from, and two of those – both StyleWriters – were from Apple. The abundance of inkjets is due largely to two things: the resurgence of the Mac – in particular, the iMac – and the USB connections now found in all modern Macs.

If you're reading this and don't have USB, then you should consider upgrading to a new machine, or at least get a USB card, which costs as little as £30.

Because manufacturers now get away with a single USB connector for both the Mac and PC markets, all they need to do is write drivers for us. This has brought some new names into the fold, including Lexmark and Xerox.

Epson has dominated the Mac inkjet-market over the past few years, with Hewlett-Packard's absence in particular allowing it to establish a firm foothold. It also helped that Epson was able to offer an excellent range of products. Although it has maintained this excellence, it now faces some stiff competition.

In the summer of 1999, Hewlett-Packard announced its return to the Mac market – after saturating every other market with its inkjets. It's taken time for it to rein-in Epson – but that's what its done, with both companies now offering top-notch products.

Canon, which never quite left the Mac

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Ink life

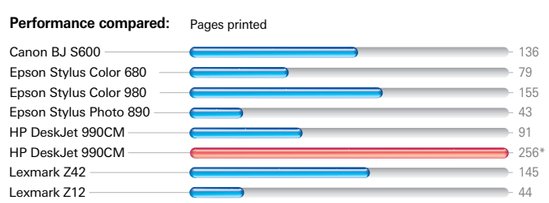
Inkjet manufacturers charge a lot for ink. Some manufacturers admit this mark-up pays for the production of cheap printers and their R&D budgets. This is a sneaky move, because, unless you keep tabs on ink outlay over time, then you don't realize just how expensive it is. With heavy use, ink outlay can soon add up to more than the cost of the printer itself.

It's time manufacturers were more open about how much they're charging us, even if this means paying more for printers. Why bother half-filling cartridges, or only making small cartridges? I don't want to pay for research into how to make small cartridges.

If you would rather pay up-front for your printer, let me know. I'll collect any responses and forward them to the manufacturers. Just write to: inklife@macworld.co.uk

Ink life-expectancy

Best results in test. Longer bars and higher number of pages are better.



* Using the double-capacity colour cartridge.

Behind our tests

All printers were tested printing the test page (see **www.macworld.co.uk/testcentre/**), with fresh ink cartridges. Once the ink was installed, the printer was set to print as many pages as possible. We didn't clean the print heads or turn any of the printers off and, as this can use ink without printing in some models. The test page is a high-coverage colour page with two photos, colour gradients and text. Printing with less ink coverage would give better results.

design

buying advice

Canon S600

The S600 is a relatively simple machine – not stuffed with functionality but an excellent performer. Not only does it print excellent glossy pictures, it has great ink life and swift print speeds. The single ink-tanks are an added bonus. For the price, it's the best printer tested.

Xerox Docuprint M750

The Docuprint printers from Xerox use single-ink cartridges, which is good for ink longevity. Print quality was a tad grainy and there was also some banding and a green colour-cast. Also, the Xerox's glossy paper is slightly textured, making it more matt than glossy.

Xerox Docuprint M760

The M760 is identical to the M750, bar its extra paper tray. Paying an additional £60 for this seems steep. Compared to the HP DeskJet 930 CM, or the Epson Stylus Photo 790 – which are around the same price – it's totally outclassed.

specs

	Canon S600	Xerox Docuprint M750	Xerox Docuprint M760
Price	£222	£90	£149
Contact	0121 666 6262	0800 787 787	0800 787 787
URL	www.canon.co.uk	www.xerox.co.uk	www.xerox.co.uk
Paper size	A4	A4	A4
Max resolution (pixels)	2,400-x-720	1,200-x-1,200	1,200-x-1,200
Time to print test A4 page	1 min 56 secs	3 mins 6 secs	3 mins 6 secs

score

	Canon S600	Xerox Docuprint M750	Xerox Docuprint M760
Value for money	7	5	3
Speed	10	9	9
Quality	9	5	5
Star Rating	★★★★/8.7	★★★/6.4	★★★/5.7

Editors' choice: A4 inkjets

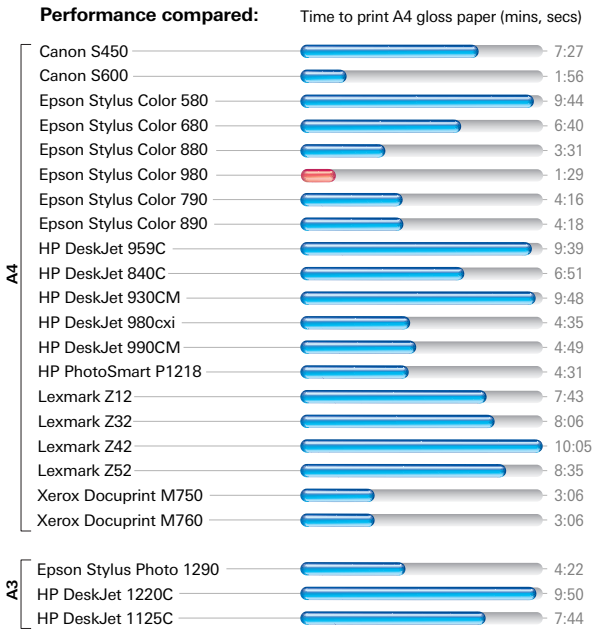
HP PhotoSmart P1218

While the PhotoSmart isn't part of the 900 series from HP, it does share many features with one of the models in that range – the 990. Like the 990, it also has features that complement digital photography, such as a card reader that's compatible with SmartMedia and Compact Flash cards, meaning it can print when your Mac is off. It can also print directly from a Palm or an infrared-equipped laptop. The 1218 also offers high print-speeds and the same top-quality printing of the 990. It includes an automatic paper-sensing feature that uses a blue light to see how shiny the paper is, and so adjusts accordingly. This is especially good for photographic work, where you may use different kinds of paper stock. It doesn't only recognize HP paper either. It can adjust settings automatically to suit any of them.

Price	£299
Contact	08705 474 747
URL	www.hp.com/uk
Paper size	A4
Max resolution (pixels)	2,400-x-1,200
Time to print test A4 page	4 mins 31 secs
Value for money	9
Speed	8
Quality	9
Star Rating	★★★★/8.9

Inkjets speed test

Best results in test. Shorter bars and quicker times are better.



Behind our tests

All the printers were tested at their recommended resolution for printing on high-quality glossy paper. This test is a worst-case scenario for speed, because of the high quality and high coverage of the test print. All models were tested using a 400MHz G3 tower. Faster or slower machines would affect the results. Print speeds also depend on output – low coverage or mono pages will print much quicker than images. A3 printers were tested using A4 paper.

market, has often been runner-up in the inkjet race. This year, its S600 has been a great success, finally cracking the photo quality it has been claiming for five years. It's just a shame Canon didn't want to submit its S800, which could have done even better than the S600. However, Canon is now on an equal footing with Epson and HP in providing high-quality inkjets.

That leaves just Lexmark and Xerox. Both companies are better known for their laser-printer ranges. Lexmark has made a substantial inroad into the inkjet market by bundling its low-cost inkjets with PCs. Even though these printers' low prices (from £60) is reflected in their quality, they can still output amazingly good photographic prints on photo paper.

The Xerox printers are a strange pair, offering almost identical features. It's difficult to see what they're aimed at – home or small business? – and the pricing is also confusing. The addition of an extra paper tray and not much else adds £50 to the price. This is steep, for either home or business use.

With any inkjet, the cost of ink has always been a thorny problem. As you'll see from our chart on page 89, the life of an ink cartridge can be short and sad. Sadder still is their price, costing as much as £50 a pop. Ink-cartridge prices vary, because they're available from high-street stores, such as Dixons and Comet, as well as mail-order companies that advertise in the back of *Macworld*. The best value is with the double-sized cartridges from Hewlett-Packard, which offer more than double

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Epson Stylus Photo 1290

The 1290 is the A3 version of the Stylus Photo 890 and, as such, shares its top-quality edge-to-edge printing features. Unfortunately, it also shares its thirst for ink. It is a great printer, but you must factor-in long-term costs when choosing a model. If you can afford the ink, then it's an excellent choice. Assuming you can handle the expense of the ink, the 1290 is an extremely versatile printer. It can print to a roll of glossy paper to make typical 4-x-6 photos. One drawback of this feature is that the roll has to be manually cut. But the image quality is indistinguishable from a real photograph.

Price	**£398**
Contact	**0800 200 546**
URL	**www.epson.co.uk**
Paper size	**A3**
Max resolution (pixels)	**2,880-x-720**
Time to print test A4 page	**4 mins 22 secs**

Value for money	7
Speed	8
Quality	10
Star Rating	★★★★/8.2

HP DeskJet 1220C

The 1220C is – in theory, at least – a graphics-oriented version of the 1125C. It sports the same PhotoRET III as the 900 series, HP's latest resolution-enhancement technology. However, results were only marginally better than the 1225C. It's difficult to justify an additional £90 over the 1225C.

Price	**£417**
Contact	**08705 474 747**
URL	**www.hp.com/uk**
Paper size	**A3**
Max resolution (pixels)	**2,400-x-1,200**
Time to print test A4 page	**9 mins 50 secs**

Value for money	7
Speed	3
Quality	8
Star Rating	★★★/6.2

HP DeskJet 1125C

The 1125C is unlike the 900 series of HP inkjets. It's an A3 model, its print drivers are different, and its listing of paper types in the print dialog window doesn't tally with HP's current paper stock. However, this doesn't affect print quality, which, although grainy, has no banding. Speed, though, is sluggish at all settings.

Price	**£328**
Contact	**08705 474 747**
URL	**www.hp.com/uk**
Paper size	**A3**
Max resolution (pixels)	**600-x-600**
Time to print test A4 page	**7 mins 44 secs**

Value for money	9
Speed	5
Quality	8
Star Rating	★★★★/7.5

the ink-life. You can buy them direct from HP's Web site (**www.hp.com/uk**). Canon's individual-colour-ink cartridges also did well. Once you run out either of yellow, cyan or magenta you need to replace only the colour that's run dry – not the whole lot, as with single cartridges.

Epson's performance on ink-life varies from model to model. Those that did best on quality – the expensive ones – were the biggest ink guzzlers. The cheapest model tested, the Lexmark Z12, was also the thirstiest. It managed only 42 pages before running out – one less than the worst Epson.

Macworld's buying advice

With these inkjets, you get what you pay for. The HP PhotoSmart is one of the most expensive, but also the most fully featured. The Epson Stylus Photo range is also at the top end of the price range, but offers unparalleled photographic output. Choosing between the two is not made easier by the ink-life tests. The photo quality of the Epson 890 and 1290 uses a lot of ink. In our tests, the Epsons managed only 43 pages before exhausting their ink cartridges. The HP 990 managed 91 pages.

Canon did well on ink life, with its S600 printing 136 pages before running dry. Canon claims its individual-colour cartridges save you money on ink in the long-term – especially true if you are likely to be printing in one colour more than the others. The Canon S600 also did best in our speed test – and, at £222, is a good alternative to the Epson or HP ranges.

At the low end, the Lexmark printers are average performers, except for their glossy photo-output. However, at the price, these one-trick ponies are bound to be of real interest to many people.

The award for the best printer, though, goes to the HP PhotoSmart 1218. It has the best range of features, and speed, quality and ink-life is the same as HP's 900 series. If you buy HP's double-size (double-priced) ink cartridges, you can cut down on trips to the computer store. **MW**

1 Jet set...go!

A3 and A4 colour inkjet printers assessed and rated

By David Fanning and Seth Havens

2 Consistent colour

Getting great colour-results from your inkjet.

By Bruce Fraser

With a good on-screen proof – or soft proof – you can more accurately manage colour to optimize images for the print process, thereby avoiding surprises, saving paper, and ultimately making a much better print than you can achieve by trial and error. Soft-proofing isn't easy, but Adobe's Photoshop 6.0 (£375; Adobe, 020 8606 4001) can help you through the process. While other applications offer soft-proofing tools, none is as accurate and powerful as the latest edition of Photoshop.

You can apply the soft-proofing techniques in this article to any output process, but they're particularly useful for making colour-accurate prints on desktop inkjet printers. Unlike commercial presses, most desktop inkjet printers produce colours that don't tend to vary over time.

Why manage colour?

Many people think that the goal of colour management is to make their prints look like the images on their monitors. But unless you live someplace where the laws of physics don't apply, that's not possible.

Monitors display many colours that ink on paper can't reproduce, whether the ink is applied by a desktop printer or a commercial press (see "Colour gamut differences"). Monitors also show a wider dynamic range – the range of brightness from black to white – than printing can achieve. Since colour management can't change the physical limitations of your printer to make it match your monitor, you need to make the image on your monitor match the limitations of your printer.

Every colour in a Photoshop file is represented by a number. Colour management changes those numbers as you send files from scanner to monitor to printer, so that the colour you see remains as consistent as the physical limitations of each device allows. This is necessary because RGB and CMYK numbers represent shifting colours – they produce different colours when you send them to different devices (they're often called device-dependent colour models).

Colour management can automatically convert images from your Photoshop colour numbers to your printer colour numbers, but automatic conversions won't handle every image optimally. When you squeeze a monitor's wide colour-gamut and dynamic

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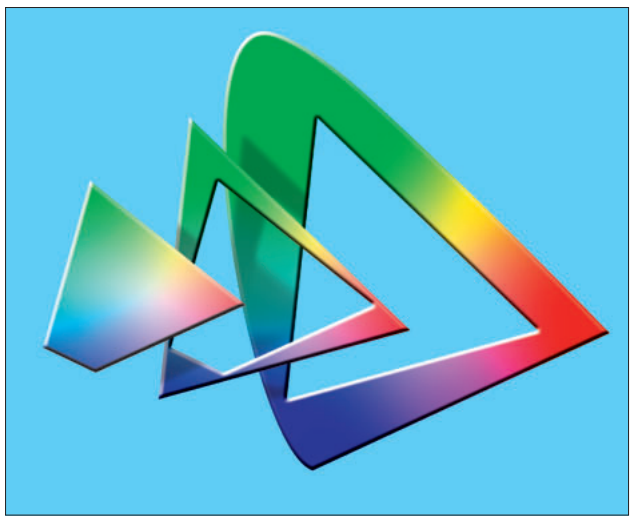


Color gamut differences

This image approximates the differences between colour gamuts. The smallest figure represents a printer; the middle triangle demonstrates a monitor's wider gamut; and the largest triangle denotes the Lab colour space, which comprises all colours in the RGB and CMYK gamuts.

Make a profile
Accurate monitor calibration is the first step toward accurate soft-proofing. You'll get the best results with a calibrator such as this one from ColorVision.

range into a printer's smaller gamut and range, you have to sacrifice what isn't important in the image. You wouldn't make the same compromise for an image of a black cat in a coal cellar as you would for a polar bear in the snow – but automatic conversions do. Great prints still take intelligent human intervention.

Make a profile

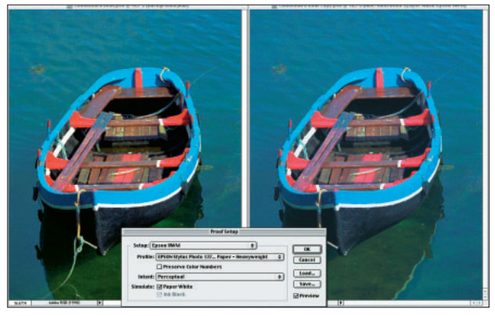
After you understand what colour management can do for you, it's time to put it into action. The accuracy of the whole process depends on the accuracy of your monitor and printer profiles. Profiles describe a monitor or printer's colour space with numbers. Colour management employs profiles to determine what colours the numbers represent and to calculate the new set of numbers you'll send to your printer to make it reproduce those colours.

Most of today's vendor-supplied profiles for desktop printers are accurate only if you use the printer vendor's inks and papers, because the printers, ink, and paper are consistent from unit to unit and batch to batch. But monitor profiles are another story. Manufacturing variance, lighting conditions, and user-adjustable brightness and contrast controls conspire to make every monitor unique, and no generic profile will describe your monitor's behaviour accurately. If you want an accurate soft proof, you must make a custom profile for your monitor.

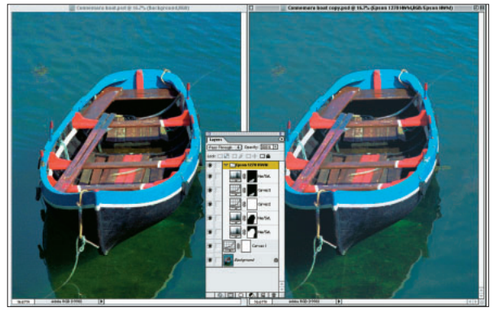
Software calibration Software-only monitor-calibrator systems, such as Apple's Default Calibrator (included in Mac OS) and Adobe Gamma (part of Photoshop), are better than nothing. Still, our eyes' ability to adapt to different lighting conditions, although normally a blessing, becomes a curse when we're trying to keep our monitors stable over time.

Hardware calibration Instrument-based calibration tools, such as LaCie's Blue Eye (£365; 020 7872 8000) can keep your monitor in a more consistent state than a software-only visual calibration system ever will. Before you spring for an instrument-based monitor calibrator, though, check to see if your monitor has enough life left to make the investment worthwhile. Here's a simple test: in your normal viewing environment, turn the monitor's contrast all the way up. If the result isn't uncomfortably bright, your monitor is on its last legs and is a likely candidate for replacement.

For monitor-calibration details, see **www.bigpicture.net/main/features/ systems-supplies/front_end/monitorcolour991212.html**.



Control colour conversions
Compare the original image (left) with the colour-managed version (right) to see the need for colour correction. The printer shifts the image slightly toward blue, and diminishes some saturation and contrast.



Make your final edits
Use a series of Curves and Hue/Saturation adjustment layers to shift the colours back from blue, increase the saturation, and restore as much of the lost contrast as the printer can reproduce.

Control colour conversions

Colour-managing an image for print should be your final step, so be sure you've made all your other tweaks before you start the soft-proofing process. Then duplicate the image; it can remind you of the way the image looked without soft-proofing, which helps guide your editing for the final print.

Now it's time to open Photoshop's Proof Setup dialog box (View: Proof Setup: Custom) to control colour conversions. This is one option-packed dialog box (see "Woods for the trees"), so a little explanation is in order.

Setup Menu The Setup menu lets you load saved setups. You can open multiple views of the same image (choose View: New View) and apply a different proof setup to each window. You can save setups for the papers you most commonly use and then apply them to different views, to decide whether an image will benefit more from the compressed tone and lesser saturation of a matte paper, or from the higher contrast and greater saturation of a glossy stock.

Profile Menu Choose the vendor-supplied profile for your printer and paper from the Profile menu. Output profiles are paper-specific, so make sure that you choose the correct one for the paper you're printing on.

Intent Menu This menu lets you choose the rendering intent Photoshop will use when converting from the working space to the print simulation. Rendering-intents control the way Photoshop maps out-of-gamut colours in an image into the limited colour space of an output device. It's best to use Perceptual rendering for images with strong saturated colours and Relative Colorimetric for images without. To see the effect of different rendering intents, select the Preview option and change the rendering intent, or open new views of the image and apply a different rendering intent to each one. Then pick the one closest to the result you want.

Preserve Colour Numbers Option Selecting this option shows what will happen if you send the image to the output device with no colour conversion. Mostly, it provides a dramatic illustration of why you need colour management – if you select it, your image will suddenly look very different, and almost certainly much worse.

Ink Black and Paper White options By default, the Ink Black and Paper White options are both not selected; this creates a preview that maps paper white to monitor white and printer black to monitor black. The preview does not show either the paper colour, which is usually grayer than the monitor's white, or the true printer black, which is often lighter than black on the monitor.

Select the Ink Black option to see the actual black you'll get on a print. You might not notice much difference if you're printing to a glossy paper, but with matte paper, checking the Ink Black check box shows you the slightly washed-out black you'll get on the printed page.

Select the Paper White option to see the effect of both the paper colour and the dynamic-range compression that takes place going from the working space to print. (When you select Paper White, Photoshop dims the Ink Black check box).

The most obvious effect you see when you select the Paper White option is the dynamic-range compression – the highlights become darker because the paper isn't as bright as the monitor. Look away from the monitor while selecting Paper White. If you don't see the change taking place, it's easier for your eye to adapt to the new white point.

You can once again use different views of the image to look at the print simulation in different ways. With both the Paper White and Ink Black options not selected, you can gauge what's happening to the saturation. With only the Ink Black option selected, you're able to focus on shadow detail.

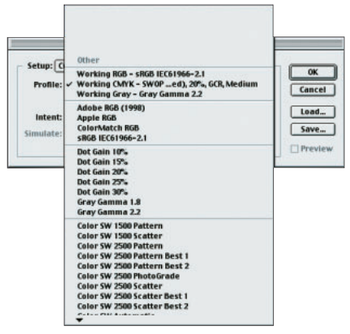
Save Proof Setup Once you've configured Proof Setup, you can click on the Save button in the Proof Setup dialog box to keep your proof setup for use on other images. If you save the setup in the Proofing folder (System Folder: Application Support: Adobe: Colour: Proofing), it will appear on the Proof Setup submenu, and you won't need to revisit 0the dialog box.

Once you configure these settings properly, you're done with the Proof Setup dialog box, so you can click on OK to close it.

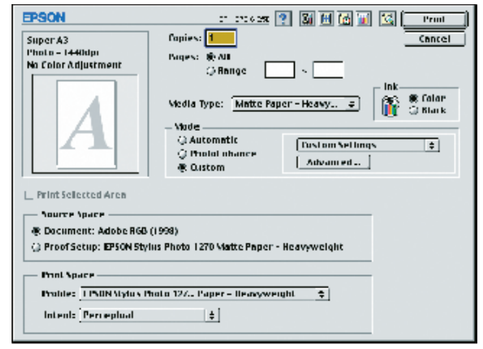
Make your final edits

Now you're working in an on-screen simulation of how your image will print. You can make final edits to optimize the image for the print process. Typically, you'll make small adjustments to saturation and to the highlight (and perhaps also the shadow) areas. If your paper white is very different from your working-space white, your soft proof will show the colour shift that the paper causes, so you might also want to adjust the overall colour balance.

A good way to accomplish these edits is to use the Adjustment Layers feature in conjunction with the new Layer Sets feature in Photoshop 6. Store all your optimizations in a layer set named after the print process that they're intended for, and you can easily turn them off when you want to print the image to a different type of paper or printer. Your master image will remain unchanged.



Woods for the trees
Photoshop 6.0's Proof Setup dialog box has a bewildering number of options.



Epson source
When printing, open the Print dialog box, choose Document as the Source Space, and set the Print Space to the profile used in Proof Setup. This ensures the conversion that occurs during print-processing is the one you've been simulating on screen.

Print the image

Finally, it's time to print the image. I prefer to open the Print dialog box, choose Document as the Source Space, and set the Output Space and Intent to the profile and intent I used in Proof Setup. This ensures that the conversion that happens at print time is the one you've been simulating. Turn off all colour management in the printer driver so you don't get a double correction that will result in a bad print.

The last word

Once you've learned the correspondence between the monitor image and the print, you'll be able to nail your prints the first time around, saving time, frustration, and money spent on ink and paper. That's the real goal of colour management. **MW**

terms at a glance

Calibration	The process of making a device handle colour consistently.
Colour gamut	The range of colours that a device can display or print.
Colour management	Matching colours as closely as possible among different devices, such as scanners, monitors, and printers.
Dynamic range	The range of visible light, from shadows to highlights, that a device can capture or reproduce.
Profile	The description of a known colour space of a monitor or printer, which enables software such as Photoshop to correctly interpret an image's colour values.
Rendering intent	Part of Photoshop's Proof Setup dialog box, it controls the way the conversion handles colours that the printer can't reproduce.
Soft proof	A reliable on-screen preview of your printed output.

Missing manual

iMovie 2: zoom with a view

Turning home video into pro video. Part Two. By David Pogue

Camcorder manufacturers are asking for it: They put the zoom-in/zoom-out buttons right on top of the camcorder, where your fingers naturally rest on them. That tempting placement has led millions of camcorder owners to zoom in or out in almost every shot – and sometimes even several times within a shot. For the camcorder operator, zooming imparts a sense of control, power, and visual excitement. Unfortunately, for the viewer, zooming imparts a sense of nausea.

In other words, most home-movie makers zoom too much. In professional film and video, you almost never see zooming, unless it's to achieve a particular special effect. (Rent a movie and note how many times the director zooms in or zooms out. Answer: almost never.)

Keep zooming under control

To separate yourself from the amateur-video pack, therefore, adopt these guidelines for using the zoom buttons:

The zoom button is ideal for adjusting the magnification level between shots, when the camcorder is paused – to set up a new shot. Be conscious of how many times you're using the zoom while the tape is rolling.

Sometimes you may be tempted to zoom in order to create an establishing shot – to show the entire landscape, the big picture – before closing in on your main subject.

That's a worthy instinct, but zooming isn't the best way to go from establishing shot to close-up. Instead, consider an effect like the extremely effective, more interesting one that opens *Citizen Kane*: a series of successive shots that dissolve, one into the next, each closer to the subject than the previous (see "Cutting out the zooms" on next page). Open with a wide shot that shows the entire airport; fade into a medium shot that shows the exiting masses of people; finally, dissolve to the worried face of the passenger whose luggage has vanished.

Naturally, you can't create the fades and dissolves while you're shooting – but it's a piece of cake to add them in iMovie. Your job while filming is simply to capture the two or three different shots, each at a different zoom level.

You don't have to avoid zooming altogether. As noted above, professional moviemakers rarely zoom; one of the exceptions, however, is when the director wants to pick one face out of a crowd, often just as some horrific realization is dawning. Furthermore, when you're filming somebody who's doing a lot of talking, a very slow, almost imperceptible zoom is an extremely effective technique, especially if you do it when the speech is getting more personal, emotional, ominous, or important.

The point is to use zooming meaningfully, when there's a reason to do it.

For the lowest motion-sickness quotient, use the hold-zoom-hold technique. In other words, begin your shot by filming without zooming for a moment; zoom slowly and smoothly; and end the shot by holding on the resulting close-up or wide shot. Don't begin or end the shot in mid-zoom.

All of this sheds light on another reason to hold at the end of a zoom, and another reason to avoid zooming in general: When editing, it's very difficult to make a smooth cut during a zoom. Cutting from non-zooming shot to another is smoother and less noticeable than cutting in mid-zoom.

Consider how much to zoom. There's no law that says that every zoom must utilize the entire 500x magnification range of your camcorder. Start or stop zooming at the point where it's most artistically satisfying.

Did you ever see *Wayne's World* – either the movie or the *Saturday Night Live* skit on which

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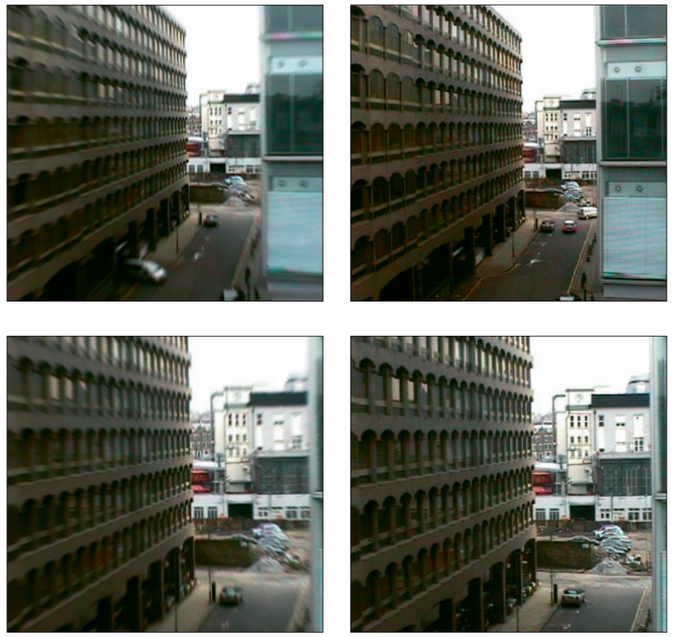
TIP Documentary makers frequently film with this pattern: Hold for five seconds; zoom in, and then hold for five seconds; zoom out again, and hold for five, then stop the shot. This technique gives the filmmaker a variety of shots, providing choice when editing the final movie.

Over its 400 pages, David Pogue's iMovie 2: The Missing Manual *(Pogue Press/O'Reilly; ISBN: 0-596-00104-5) provides a complete course in Macintosh film-making – and unearths dozens of undocumented iMovie 2 features. This article is the second of a series of Macworld extracts from the book, which costs £13.95 from all good booksellers.*

Cutting out the zooms

Be like Orson Welles making *Citizen Kane* – cut, don't zoom



Zooming, as represented here by several sequential frames (left-hand column), is a dead giveaway that the movie is home-made. Try a more professional sequence to set up your shot (right-hand column): Hold on a wider, scene-establishing shot, and the cut to a tighter close-up (bottom).

it was based? *Wayne's World*, of course, was a spoof of a public-access cable TV show – a hilariously amateurish show that was supposedly shot with a camcorder in somebody's basement. The show's trademark camera work: multiple zooms in a single shot. (Such annoying shots are always accompanied by Wayne and Garth shouting, "Unnecessary zoom!")

As rare as zooming is in professional TV and film, multiple zooms in a single shot is virtually unheard of. To avoid creating a *Wayne's World* of your own, zoom only once, in only one direction, and then stop to focus on the target. Don't zoom in, linger, and then continue zooming; and don't zoom in, linger, and then zoom back out (unless you intend to discard half of that shot during editing). Furthermore, on camcorders equipped with a variable-speed zoom, try to keep the zoom speed consistent. (The slowest zoom is usually the most effective.)

Note: There's an exception to the avoid-zooming-in-and-out-while-shooting rule. That's when you're filming a one-of-a-kind event and you're desperate to keep the camera rolling for fear of missing even a second of priceless footage. In that case, zoom all you want to get the shots you want. But do so with the understanding that the good stuff won't be the zooming footage – it will be the scenes between zooms.

Later, you can eliminate the unnecessary zooms during iMovie editing.

Panning and tilting

Panning is rotating the camera while recording – either horizontally, to take in a scene that's too wide to fit in one lens-full, or vertically (called tilting), to take in a scene that's too tall.

In general, panning is justifiable more often than zooming is. Sometimes, as when you're filming a landscape, a skyscraper, or a moving object, you have no alternative. Standard camcorder lenses simply aren't wide-angle enough to capture grand panoramas in one shot, much to the frustration of anyone who's tried to film New Zealand landscapes, New York skyscrapers, or the Grand Canyon.

Even so, some of the guidelines listed above for zooming also apply to panning:

Pan only when you have good reason to do so. One of the most common reasons to pan is to track a moving target as it moves through space. (Interestingly, professionals pan most of the time from left to right, the way people read, except when a shot is meant to be deliberately disturbing.)

In fact, almost any pan looks better if there's something that "motivates" the camera movement – a car, train, bird flying, person walking, or anything else that draws the eye, justifies the pan, and gives a sense of scale to the image.

Begin and end the pan by holding, motionless, on carefully chosen beginning and ending images.

Make an effort to pan smoothly and slowly; this time, you can't rely on the camcorder's electronics to ensure smoothness of motion, as you can when zooming. Bracing your elbows against your sides helps. (If you pan too fast, you may create what's known as a swish pan – a blurry shot that's intended to be disorienting, as when the main character, being chased through a crowd, is desperately turning his head this way and that in an effort to spot his pursuers.)

Avoid panning more than once in a shot. Make an effort not to perform such classic amateur manoeuvers as the Pan/Linger/Pan or the Pan-to-the-Right, Get-Distracted, Pan-Back-to-the-Left.

If you're especially gifted with your camcorder, remember that you can also pan and zoom simultaneously. This, too, should be considered a special effect used rarely; but when you are, in fact, filming a close-up of somebody saying, "Look! The top of the building is exploding!", nothing is more effective than a smooth zoom out/pan up to the top of the building.

Practice the pan, tilt, or zoom a couple of times before rolling tape. Each time, the result will be smoother and less noticeable.

Be careful about panning when your camcorder's electronic image stabilizer is turned on. If you're doing a slow pan when the camcorder is on a tripod (as it should be), the shot gets jittery and jumpy as the camera tries to hold onto ("stabilize") one scene as you rotate a new one into view. If your camcorder is on a tripod, you're safe to turn off the electronic stabilization anyway. (Optical stabilization doesn't exhibit this problem.)

Keep the camera steady

Here's another difference between amateur and pro footage: Most camcorder movies are shot with a camera held in somebody's hand, which is extremely obvious to people who have to watch it later. Real TV shows, movies, and corporate videos are shot with a camera on a tripod. (There are a few exceptions, such as a few extremely annoying-to-watch Woody Allen movies; but they were shot with handheld cameras for an artistic reason, not just because it's too much trouble to line up a tripod.)

It's impossible to overstate the positive effect a tripod can have on your footage. Nor is it a hassle to use such a tripod; if you get one that's equipped with a quick-release plate, the camcorder snaps instantly onto the corresponding tripod socket. Tripods are cheap, too – you can buy one for as little as £20, although more expensive tripods have more features, last longer, and are less likely to nip your skin when you're collapsing them for transport.

Of course, tripods aren't always practical. When you're trying to film without being noticed, when you don't have the luggage space, or when you must start filming immediately, you may have to do without. In those instances, consider one of these alternatives:

Turn on the image stabilization feature. Every modern DV camcorder includes an image stabilization feature, which magically irons out the minor jiggles and shakes associated with handheld filming. Using electronic/digital (as opposed to optical) image stabilization drains your battery faster, so feel free to turn it off when you are using a tripod – but at all other times, the improvement in footage is well worth the power sacrifice.

Make the camera as steady as possible. If you can steady it on top of a wall, on top of your car, or even your own knee, you'll get better results. If there's absolutely nothing solid on which to perch the camcorder, keep your camcorder-hand elbow pressed tightly against your side, use two hands, and breathe slowly and with control. When you pan, turn from the waist, keeping your upper body straight. Bend your legs slightly to serve as shock absorbers.

Zoom out. When you're zoomed in to film something distant, magnifying the image by, say, 10 times, remember that a one-millimetre jiggle gets magnified many times. When you're zoomed in a lot, it's easy to produce extremely

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Power users' clinic: Recording entrances and exits

When it's possible, record the "entrances and exits" of moving subjects into, and out of, your camcorder's field of vision. For example, if you're filming two people walking, film the space where they're about to appear for a moment – and then, when they enter the frame, pan the camcorder to follow their movement. Finally, stop panning and let your subjects walk clear out of the frame.

Entrances and exits like this make more interesting footage than simple follow-them-all-the-way shots. By letting the motion occur within the frame, for example, you emphasize the motion. If a car zooms across the screen, and then exits the frame, your viewers can see how fast it was going.

But if you track the car by panning all the way, you diminish the sense of motion; it's hard to tell how fast a car is moving if it's always centred in a panning shot.

More important, frame entrances and exits can help make your editing job easier, thanks to their ability to disguise discontinuous action. Suppose, for example, that you've got a medium shot of a schoolgirl starting to raise her hand. But the shot ends when her hand is only as high as her stomach. Now suppose that the next shot, a close-up of her face, begins with her hand entering the frame from below, whereupon it heads for, and finally scratches, her nose.

You can safely cut from the stomach shot to the nose shot; because of the hand's entrance into the frame, your cut looks natural and motivated. The "entrance" disguises the fact that the hand was at stomach level in one frame and at face level in the next.

Without that entrance, you'd wind up with a jump cut – an abrupt, irritating discontinuity in time from one shot to the next.

TIP If you plan to save your finished iMovie work as a QuickTime movie – a file that plays on your computer screen, rather than a tape that will play on your TV – panning and zooming slowly and smoothly is especially important. iMovie's compression software works by analyzing the subtle picture differences from one frame to another; if you zoom or pan too quickly, the QuickTime compressors won't understand the relationship between one frame and the next. Blotchiness or skipped frames (which cause jerky motion) may result in the finished QuickTime movie.

TIP If the camcorder on the tripod isn't perfectly level, the picture will start to tilt diagonally as you pan (the car will appear to be driving up or down a hill instead of across a flat plain.) To prevent this phenomenon, make sure that the camera legs are carefully adjusted – slow and tedious work on most tripods. But on tripods with ball-levelling heads (an expensive feature, alas), achieving levelness takes just a few seconds: just loosen a screw, adjust the head until it is level, and tighten the screw down again.

TIP Regardless of your camcorder model, you'll get the best and steadiest results if you use your free hand to brace the bottom of the camera. Holding both sides of the camcorder isn't nearly as steady.

Buyers Guide: How to buy a tripod

A tripod has two parts: the legs and the pan head. The camera attaches to the pan head, and the legs support the head.

You can buy a tripod with any of three pan head types. Friction heads are the simplest, least expensive, and most popular with still photographers; unfortunately, they provide the bumpiest pans and tilts when used for videotaping. Fluid heads are the most desirable kind; they smooth out panning and tilting. They're more expensive than friction heads, but are well worth the money if you're after a professional look to your footage. Finally, geared heads are big, heavy, expensive, and difficult to use; these are what Hollywood productions use, because they can handle heavy film cameras.

The tripod's legs may be made of metal, wood or composite. Metal is light and less expensive, but easier to damage by accident (thin metal is easily bent). Wood and composite legs are much more expensive; they're designed for heavier professional broadcast and film equipment. The bottoms of the legs have rubber feet, which is great for use indoors and on solid floors. Better tripods also have spikes, which work well outdoors on grass and dirt.

Good tripods also have spreaders that prevent the legs from spreading apart and causing the entire apparatus to crash to the ground.

If your tripod doesn't have spreaders, you can put the tripod on a piece of carpet, which prevents the legs from slipping apart.

In general, you adjust a tripod's height by extending the legs' telescoping sections. Some tripods have a riser column, too, that lets you crank the pan head higher off the legs. Remember that the higher the camera is lifted up, the more unsteady it becomes, so sturdiness is an important characteristic.

TIP Don't zoom in so far that you make the camcorder's digital zoom kick-in. Most camcorders zoom in optically (true zoom) for several seconds, and then, as you continue to press the Zoom button, begin the artificial digital zoom that makes the image break up. You can detect the end of the optical zooming in two ways: First, a bar graph in the viewfinder usually identifies the ending point of the true zoom's range. Second, your camcorder may introduce a very short pause in the zooming as it switches gears into digital mode. Either way, when using the manual-focus trick described here, you want to zoom in all the way using your true, optical zoom only.

TIP When filming distant objects use manual, not auto, focus. Above (top) is the view above the Maldives through a light-aircraft window using manual focus. The bottom image is the same shot using auto focus. The shot is ruined because auto focus fixed on dirt and spots of rain on the window, rather than the spectacular scenery beneath.

unsteady footage. Keep this in mind when deciding how much you want to zoom; the most stable picture results when you're zoomed out all the way. (Zooming also makes focus more critical.)

Consider a monopod. Despite the enormous boost in stability that a tripod gives your footage, you don't always have the time to unlatch, extend, and re-latch each of the three legs. If the kind of shooting you do frequently requires such fast setup and takedown, consider a monopod.

Much as though it sounds like a creature from a sci-fi movie, a monopod is actually a closer relative to a walking stick: it's a collapsible black metal post for your camcorder. When using a monopod, you still have to steady the camcorder with your hands, and jiggles are still possible – but the monopod eliminates motion from one of the three dimensions (up and down), which is better than nothing. And the monopod, of course, takes very little time to set up and take down.

Get a clamp. You can also buy vice-like clamps equipped with camera plates. You can clamp them to car windows, chair backs, tops of ladders, skateboards, and so on, for even more stable-shooting options. (Put a piece of cloth between the clamp and the surface to prevent scratching.)

Keep it in focus

A camcorder is a camera, just like any other; if its lenses aren't focused on the subject, you wind up with a blurry picture.

In theory, the auto-focus feature of every DV camcorder takes care of this delicate task for you. You point the camera; it analyzes the image and adjusts its own lens mechanisms; and the picture comes out in sharp focus.

The auto-focus mechanism isn't foolproof. Camcorders assume that the subject of your filming is the closest object; most of the time, that's true. But now and then, your camcorder may focus on something in the foreground that isn't the intended subject; as a result, what you actually wanted to capture goes out of focus.

Another hazard of auto-focus: solid or low-contrast backgrounds (such as a polar bear against a snowy background). The auto-focus method relies on contrasting colours in the image. If you're aiming the camcorder at, say, a white wall, you may witness the alarming phenomenon known as auto-focus hunting, in which the camcorder rapidly goes nearsighted, farsighted, and back again in a futile effort to find a focus level that works.

Other situations that freak out the autofocus include: shooting when it's dark; shooting through glass; filming a subject that's not centred in the frame; high-contrast backgrounds (such as prison or cage bars, French-window frames, and so on), which compete for the autofocus's attention

Manual focus

Fortunately, most DV camcorders offer a manual-focus option: a switch that turns off the auto-focus. You must set the focus by hand, turning a ring around the lens (or pushing + and – buttons) until the picture is sharp.

If neither you nor your subject has any intention of moving during the shot, that's all there is to manual focus. Moving shots are trickier, because as the distance between you and your subject changes, you don't have time to fiddle with the focus ring; the best approach is to keep the camera zoomed out all the way as you pan to track the action.

Another potential problem: zooming. When you zoom, your focus changes, too. Fortunately, there's an ancient and very clever trick that circumvents this problem: the zoom-out-and-focus trick. It goes like this:

1. Zoom all the way in to your subject.
You haven't yet begun to record.
You're just setting up the shot.
2. Focus the camcorder manually.
3. Zoom back out again.
As you zoom out, notice what happens: the camcorder remains in perfect focus all the way. Now you can begin to film, confident that even when you zoom in, the picture will remain in sharp focus. MW

Table talk

Use QuarkXPress's Tabs to add spice to dull tables. By David Blatner

Let's face it: a table full of data is not a pretty sight. Yet making tables is a reality for most designers. The challenge is making a table look nice enough so readers don't immediately turn the page, but not so wild that it turns their stomachs. One trick is to add a stripe of colour behind every other line of text.

A number of tools can help you make tables and alternating tints in QuarkXPress, such as Table2000, from Tableworks (US$199 plus shipping; **www.tableworks.com**), and TableMaker, from Gluon (£79 ex. VAT; XChange UK; 020 7588 5588). These extensions are well worth the price if you need to crank out lots of tables. But what if you build tables only occasionally – and not very complex ones, at that? You can use XPress's built-in Tabs feature to design tables and then add alternating tint stripes to make the data easy to read.

Some people use the Rule Above feature to make these stripes, but I find this too time-consuming. Instead, I like to use an XPress feature that most people don't associate with tables – Dashes & Stripes – to turn a dash into a series of tinted stripes behind a table. It's easy, fast, and very flexible.

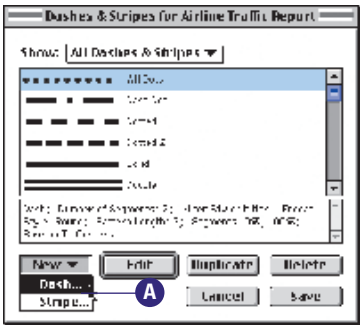
Create a custom dash The Dashes feature in QuarkXPress 4 is more useful than it looks. In this example, I made a custom dash that perfectly matched the size of a table (created in two separate boxes using XPress's Tabs feature).

TABLE 4.2
EU AIRLINE TRAFFIC ENPLANED – AIR CARRIERS SCHEDULED AND NON-SCHEDULED OPERATIONS

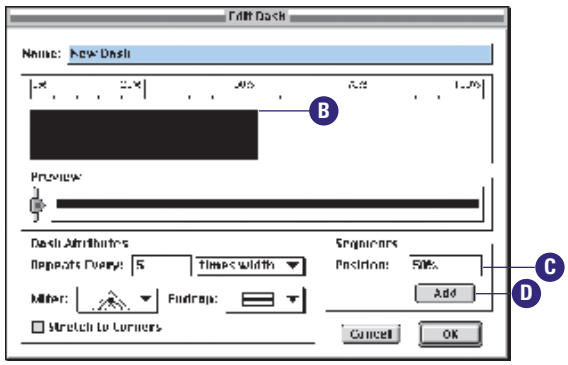
Year	Total Passengers	Aircraft Departures	Tons of Cargo
1993	468,313,029	7,193,841	6,383,887.2
1994	508,458,194	7,513,232	6,802,375.2
1995	526,055,483	8,030,530	7,204,478.8
1996	558,183,741	8,204,674	8,047,794.9
1997	448,913,726	6,640,400	5,073,264.9

Original Table

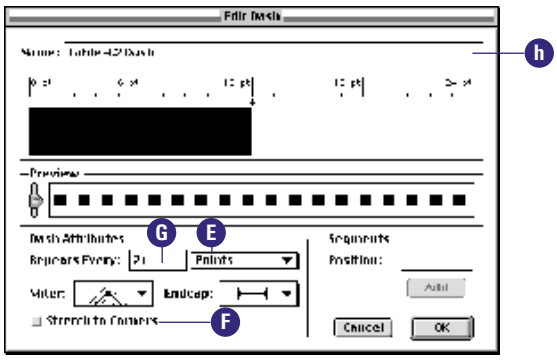
■ Check the Formats dialog box, and note the amount of space between your table's paragraphs – the Leading value plus the Space Before or Space After value. You'll use this amount later when you configure the dash.



■ Next select Dashes & Stripes from the Edit menu. In the dialog box that appears, select Dash from the New pop-up menu to open the Edit Dash dialog box (A).



■ Begin making a simple dash by clicking on the 50 per cent mark in the top section of the dialog box (B) or by typing 50 in the Position field (C) and clicking on the Add button (D).



■ The fields in the Dash Attributes portion of this dialog box are important. Select Points from the Repeats Every pop-up menu (E), and make sure the Stretch To Corners option (F) is not selected – so the dash length won't vary. Double the amount of space between your table's paragraphs and type the result in the Repeats Every field (G). For instance, if the table rows are 12 points tall, enter 24. Give your dash a name (H), and click on OK. Click on Save to exit the Dashes & Stripes dialog box.

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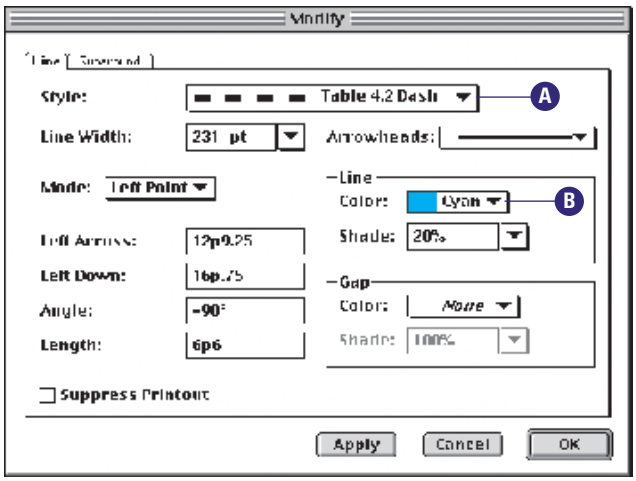
2

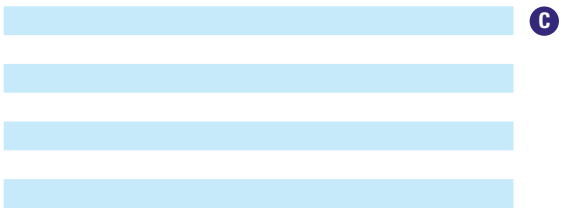
Apply the dash to your line I can hear some of you wondering: "What does a custom dashed line have to do with alternating tint stripes?" The trick is making a line so thick that when you apply your new dash pattern behind the table, the dashes look like rows of colour.

■ Select the text box that contains the table, and note it's width – the W field in the Measurements palette can tell you at a glance. Now draw a vertical line using one of the line tools. Make it as tall and as wide, or "thick", as your table.



■ Select Modify from the Item menu, choose the custom pattern you just created from the Style pop-up menu (A), and select the colour you want for your alternating tint (B).

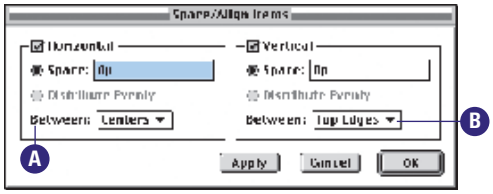
■ When you click on OK, your line will be transformed into dashed lines (C).



3

Place the line Getting the alternating tints to align properly with the table is a minor hassle, but QuarkXPress has the precision tools you need to get it just right.

■ Use the Bring To Front command (in the Item menu) to put the text box on top of the stripes. Then make sure the background colour of your text box is None – set this under the Box tab of the Modify dialog box – so you can see the stripes.



■ To align the box and the line precisely, select both elements, choose Space/Align from the Item menu, and set the Horizontal position to Centres (A) and the Vertical position to Top Edges (B), with 0p in the Space value for each. Click on OK.

■ Next select just the text box and choose Modify from the Item menu. Under the Text tab of the resulting dialog box, type the amount of space between paragraphs and then type 0.75 into the First Baseline Offset field. This will move the text down to align properly with the first stripe.

■ Click on OK, and you have a finished table with tints in the right place. The great thing about this method is that if your table gets longer, you can lengthen the line.

TABLE 4.2

UK AIRLINE TRAFFIC ENPLANED – AIR CARRIERS SCHEDULED AND NONSCHEDULED OPERATIONS

Year	Total Passengers	Aircraft Departures	Tons of Cargo
1993	468,313,029	7,193,841	6,383,887.2
1994	508,458,194	7,513,232	6,802,375.2
1995	526,055,483	8,030,530	7,204,478.8
1996	558,183,741	8,204,674	8,047,794.9
1997	448,913,726	6,640,400	5,073,264.9

4

Add effects Why stop at simple stripes? Why not make those tints really dazzle, with blends or even a picture? Remember that QuarkXPress can convert any type of object into another type; in this example, I converted a dashed line into a bézier box and then filled it with a blend and a picture.

■ First, check that the line is just the right size for your table; once the line is a box, you can't change its attributes. To convert the line, select it and choose the bézier box shape (A) from the Item menu's Shape submenu. There's a problem in XPress that causes the resulting box to offset slightly when you do this, so you may need to realign the objects using the Space/Align feature (as in step 3).

■ Once you have a box instead of a line, use the Colours palette to fill it with a blend.

■ Or you can fill it with a picture: select Picture from the Content submenu (in the Item menu) and then put a graphic in the box.

TABLE 4.2

EU AIRLINE TRAFFIC ENPLANED – AIR CARRIERS SCHEDULED AND NONSCHEDULED OPERATIONS

Year	Total Passengers	Aircraft Departures	Tons of Cargo
1993	468,313,029	7,193,841	6,383,887.2
1994	508,458,194	7,513,232	6,802,375.2
1995	526,055,483	8,030,530	7,204,478.8
1996	558,183,741	8,204,674	8,047,794.9
1997	448,913,726	6,640,400	5,073,264.9

TABLE 4.2

EU AIRLINE TRAFFIC ENPLANED – AIR CARRIERS SCHEDULED AND NONSCHEDULED OPERATIONS

Year	Total Passengers	Aircraft Departures	Tons of Cargo
1993	468,313,029	7,193,841	6,383,887.2
1994	508,458,194	7,513,232	6,802,375.2
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1996	558,183,741	8,204,674	8,047,794.9
1997	448,913,726	6,640,400	5,073,264.9

Office party

Let Office save you from address-writing hell.

By Robert Correll

We all love a party – unless, of course, we're stuck with the tedious chore of addressing and mailing several dozen invitations. Now you can avoid writer's cramp by enlisting Microsoft Office 2001 to create address labels for you. Although Office can't lick stamps or put your invitations in the mail, it can make the laborious and time-consuming task of creating labels much easier and faster.

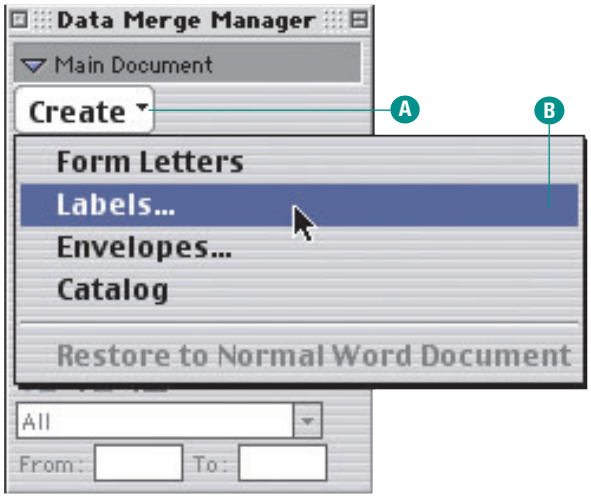
For this project, you'll use Office's new Address Book (part of Entourage), Word, sheets of blank printer-friendly address labels, and a printer.

Before you start, enter the names and addresses of your guests in Entourage's Address Book. If you currently use another email program or contact manager, such as Netscape Communicator or Now Contact, you can import this information into Entourage's Address Book easily.

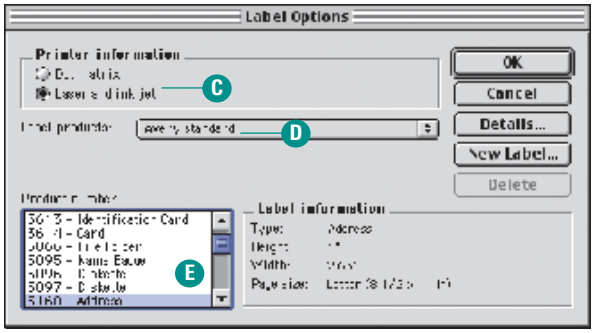
Once your Address Book is complete and up-to-date, making labels is a breeze – whether you're throwing a party for 12 or 120. The time you save will be more time for you to enjoy planning your party.

ILLUSTRATION IMAGES COURTESY OF DIGITAL VISION

1 Configure your labels Once you've entered your contacts in Entourage's Address Book and are satisfied that you haven't left out anyone you want to invite, you're ready to launch Word and begin formatting the address labels.



■ In a blank Word document, go to the Tools menu and select Data Merge Manager. To correctly format the document for your labels, select the Create menu (A) and choose Labels (B) from the pop-up menu.



■ In the Label Options dialog box, specify the type of printer you have (C).

■ To create the correct margins and layout for your brand of labels, find and select your labels' manufacturer from the Label Products pop-up menu (D). Then select the exact type of label you have from the Product Number list (E). This information is listed on the label packaging.

TIP: If you can't find your manufacturer, choose Other from the Label Products pop-up menu for additional options. If you still can't find it, create your own label layout – from measurements you've taken – by clicking on the New Label button.

■ When you're finished, click OK.

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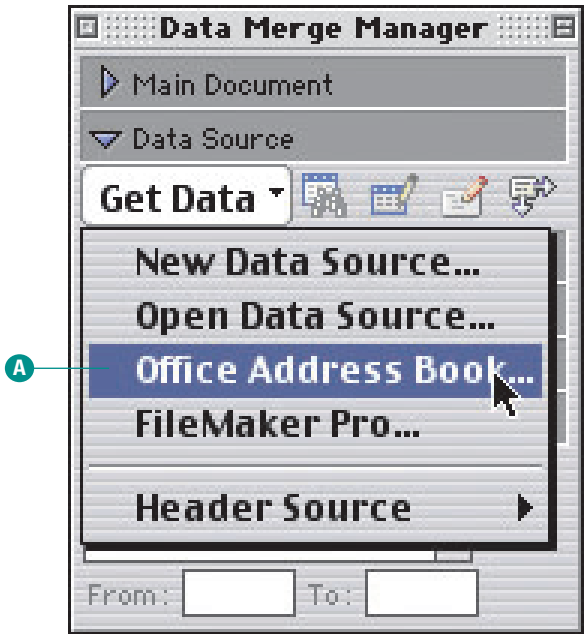
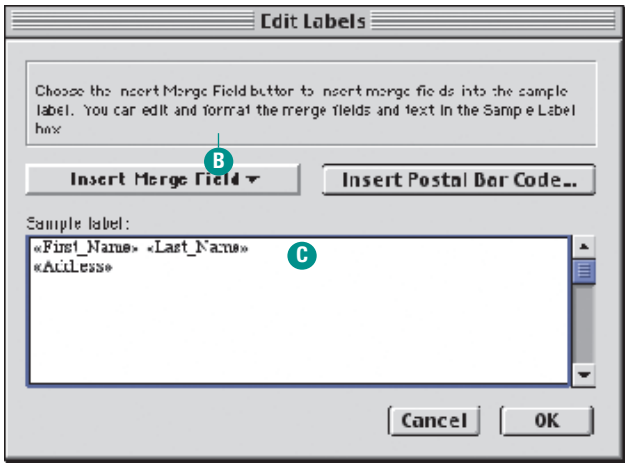
2

Import your contacts After you format the main document and choose a label type, you're ready to import contact information into Word from your Address Book.



■ To tell Word where to find the data for your labels, open the Data Source menu, click on Get Data, and select Office Address Book (A) from the pop-up menu that appears.



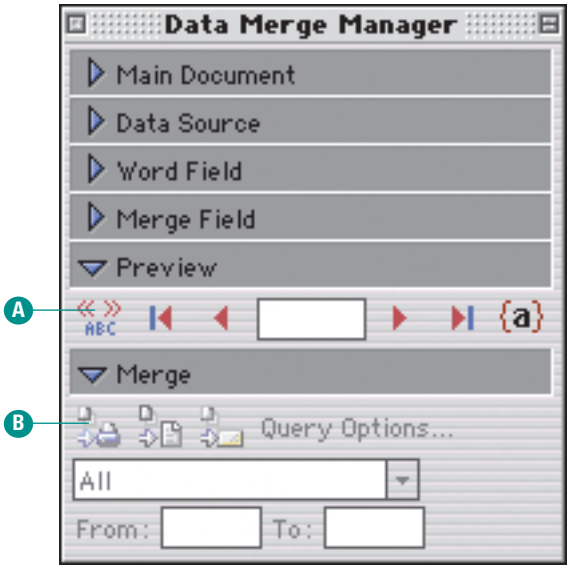
■ The Edit Labels dialog box lets you specify which data fields to include on your label and how they should be formatted. To add a new data field, such as Last Name, open the Insert Merge Field pop-up menu (B) and select the appropriate field.

■ In the Sample Label window (C), format the data exactly as you want it printed, including spaces, returns, and any other punctuation. Click on OK when you're done.

■ At this point, your main document contains placeholders for your label data, with the proper layout.

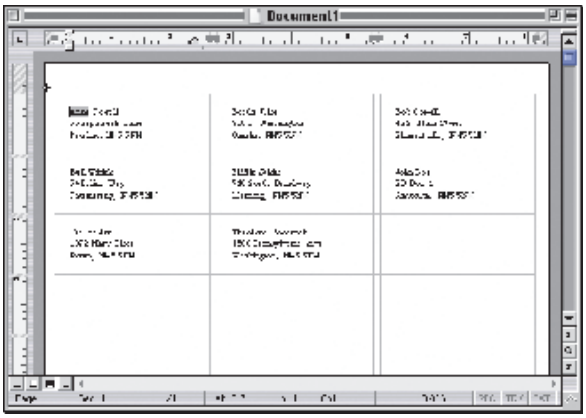
3

Preview and print Now that you've specified a label type, imported information from the Address Book, and formatted the information for printing, you can preview your labels and print them out.



■ To preview your finished labels, return to the Data Merge Manager and click on the View Merged Data button (A) in the Preview section.

■ Word replaces the label placeholders with the information from your Address Book. Check the document for errors.



■ If everything looks fine, you're ready to print. To avoid wasting labels, make a test print on plain paper. Place the test print over a label sheet and hold them up to a light to check margins. If they're drastically off, you probably chose the wrong label in step 1.

■ Insert the labels in your printer's paper tray and click on the Merge To Printer button (B) under the Merge drop-down menu. The final result is a professional-looking set of labels ready to be placed on envelopes.

• Back-button bother • iTunes extensions • Dreamweaver GIFs

Q&A/tips

Handy Mac tips and readers' questions answered. **By Christopher Breen**

Missing resolutions

Q The only monitor-resolution option my monitor offers is 640-x-480 pixels. I used to be able to select resolutions of 800-x-600 and 1,024-x-768 pixels. Where have the options gone?

Ann Joyce

A It sounds like the Monitors Preferences file (System Folder-Preferences-Monitor Preferences) is corrupt. To repair this problem, move the file to another location – don't trash it yet, in case something goes wrong and you want to return it to its original stomping grounds – and restart your Mac. A new Monitors Preferences file will be created and your resolution choices should return. If everything seems to be ticking along all right with the new preference file in place, feel free to trash the old one.

It's a simple fact of computing that preference files occasionally go bad, causing odd behaviour.

Therefore, if you notice that something has gone inexplicably wrong where all was once right as rain, evicting a preference file or two isn't a bad idea. For example, I repaired my misbehaving AppleCD Audio Player by removing the AppleCD Audio Player Prefs and AppleCD Player Preferences files. And when my Mac was generally misbehaving and disk-repair utilities couldn't effect a solution, I tossed the Finder Preferences file and restarted the Mac, and everything was hunky-dory.

Back-button bother

TIP If you're on a Web site where the Back button and menu command have been disabled, but you want to go back to the previous site, just type **javascript:back()** into the address field. Unfortunately, this works only in Netscape Navigator, not in other browsers.

Andrew Johnson

Disc Burner meets iTunes

TIP If you try to create an audio CD with Disc Burner and receive this error: "The format 'Audio CD' cannot be used because the formatting application could not be found." ... you need to download a copy of iTunes. Without iTunes installed, Disc Burner can't create an audio CD.

Left over sound files

TIP If you've installed iTunes on an iBook or FireWire PowerBook running Mac OS 9.0 or 9.0.4 and have attempted to mount a PlayStation disc, your Mac may have asked if you'd like to initialize this disc. And then, after clicking the Eject button, the audio portion of the disc may appear on your Mac's desktop.

This happens because the version of the Foreign File Access extension included with OS 9.0.x and the Apple CD/DVD driver don't see eye to eye. If you have this problem, Apple suggests upgrading to OS 9.1 to get the current version of Foreign File Access.

2GB file woes

Q Adobe Premier 6.0's support of 2GB-plus files is a problem when archiving with Dantz Retrospect 4.3, which does not

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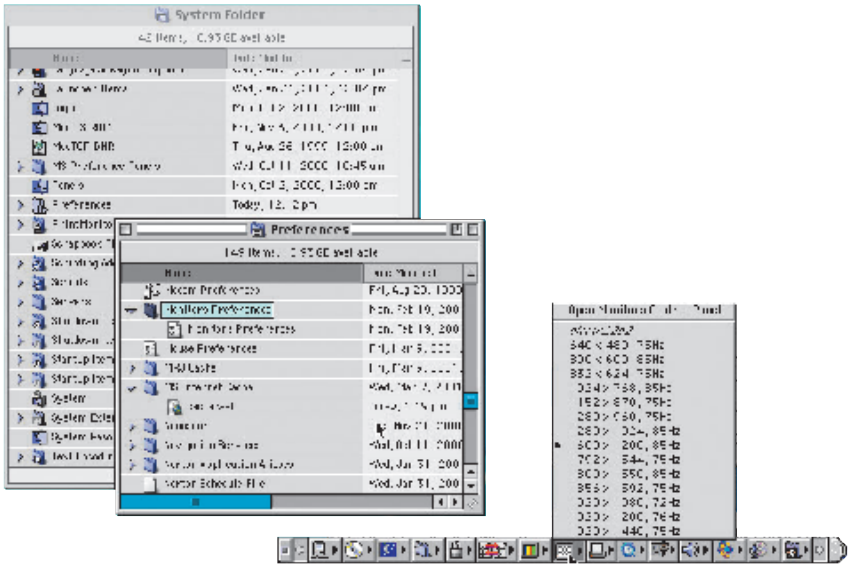

Display dearth

See Missing Resolution for tips on restoring Monitor Preferences.

Download friend's email

Q Is there a simple way to connect to a friend's Internet service provider, log on to that friend's email account, and download his messages?
Jeff Z

A While you can configure the Remote Access control panel to dial into your friend's ISP, it's unnecessary. Just log on to your own ISP and flit from one POP account to another. To do so, in your email client create a new account that contains your friend's settings and download her mail. Here's how it works in Microsoft Outlook Express (OE):

Select Accounts from OE's Tools menu. Click on the New button, make sure POP is selected in the Account Type pop-up menu, and click on OK. Create a name for the account and fill in the user information (left). That information will include her user name, password, the name of her ISP's POP server (mail.slippery.net, for example), and the name of the SMTP server. When you next log on to your ISP, just select this account and pick up your friend's mail. Note, however, that when you download her mail, it will go into your in-box unless you've created a filter to divert it to its own folder.

support 2GB-plus files. I've tried using file spliters, but they will not read files over 2GB either. I've had to revert to using Premiere 5.1, which splits files into linked sub-2GB files. Has anyone else encountered this problem yet?
Peter Holt

A You are not alone. Apple supposedly removed the 2GB file limit in Mac OS 9. Unfortunately, the company didn't give developers tools to access those files. Retrospect-maker Dantz tells *Macworld* that it is "working hard to get a new release out with the 2GB limit addressed".

What's worse is that it's still not possible to have files larger than 2GB on an AppleShare IP (ASIP) Server, either. For more info, see: **http://til.info.apple.com/techinfo.nsf/artnum/n15460**.

If you have a 2.1GB file on your hard drive, you can't move it over the network to a volume on an ASIP Server. You'll have exceeded its maximum file-size limit. This is partially why there are only about four or five applications that can even create a Mac OS file larger than 2GB. (Oddly enough, Retrospect 4.3 is now one of those applications.)

Dantz is also hard at work "Carbonizing" the Retrospect Backup software to run on Mac OS X. Unfortunately, the March 24 release of Mac OS X will not include all of the OS components necessary for the level of advanced device communication required by Retrospect. Apple is working to meet these needs and plans to deliver these components in an update to Mac OS X as soon as possible. When Dantz ships the Mac OS X edition of Retrospect later this year, it will be able to back up files larger than 2GB.

iTunes extension conflict

TIP Just as you can with Casady & Greene's SoundJam MP, you can use Apple's iTunes to stream audio files across a network. Here's how:

On the Mac that holds the audio files (we'll call this the server), copy the iTunes Music Library file (located inside the iTunes folder inside the Documents folder at the root level of your start-up drive) to a networked volume that contains a copy of iTunes (we'll call this the client Mac). On the client Mac, place the iTunes Music Library file you just copied in this same location (Hard Drive-Documents-iTunes). Moving the file to this location on the client Mac will overwrite any iTunes Music Library file already present, so store the old file in a safe place if you want to save it.

Now launch iTunes on the client Mac. When you do, you'll see that the library contains a list of the iTunes audio files contained on the server Mac. Press iTunes' Play button and a dialog box appears asking you to connect to the server Mac. If necessary, enter your username and password and click OK. Once you do, the iTunes files stored on the server Mac will play through the client Mac's speakers.

Make audio heard

TIP If you've made an audio CD with iTunes and it won't play on a stand-alone DVD player – due to a number of possible reasons – Apple recommends that:

1. You make sure that you record to CD-R media rather than CD-RW media. CD-RW discs won't play back on DVD players (and most consumer CD players as well).

2. Check your DVD player's manual to see if it's capable of playing CD-R discs. Not all DVD players can.

3. Try a different-coloured disc. If green discs don't work for you, try one with a silver or gold tint.

Sleep talk

TIP To make your PowerBook wake more quickly from sleep, switch AppleTalk off prior to putting the PowerBook to sleep – this will take seconds of the wait.

Reduce iTunes gaps

TIP If you're unhappy with the length of time between one track and another on an iTunes CD, here's how to reduce it: Select Preferences from iTunes Edit menu and click the Advanced tab.

In the resulting window, select a gap of one second in the Gap Between Tracks pop-up menu and click OK.

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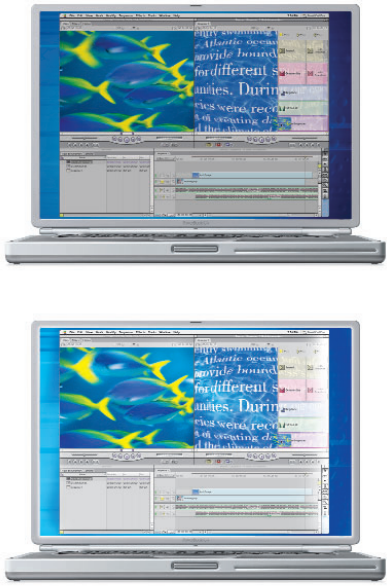


Warm-up wait
If the LCD screen on your PowerBook, iBook, Apple Cinema Display, or Apple Studio Display isn't as bright as you'd like it to be after the Mac first starts up or wakes from sleep, wait a bit. As a backlit LCD display warms up, it gets brighter. The period it takes to warm up can range from a few minutes to over an hour, so be patient.

Dreamweaver GIF workaround

TIP Macromedia and Apple report that GIF images will appear distorted with Dreamweaver 3, Dreamweaver 4 and Dreamweaver UltraDev when these applications are running under Mac OS 9.1. These images are not affected within browsers, however.

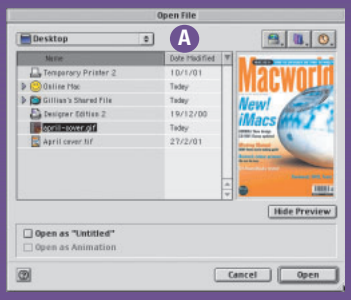
Macromedia suggests this workaround until it can come up with a more acceptable solution:

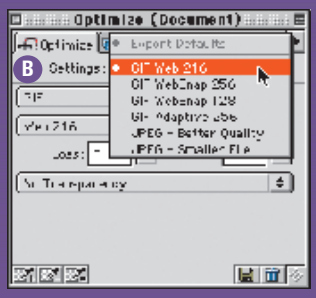
A. Open the GIF image in Fireworks, and go to Window-Optimize.

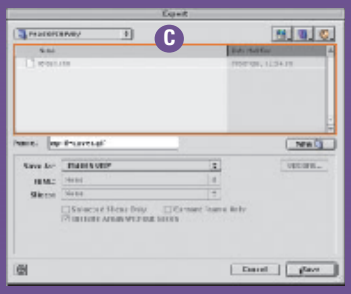
B. Change the colour table drop-down menu from its current setting to some other setting, such as Web 216.

C. Go to File-Export.

D. Click the Save button to export the image again with the new setting.







Macworld's chief sub-editor Woody Phillips and contributing editor Chritopher Breen answer readers' questions and select reader-submitted tips for this column. Send your question or tip (include your address and phone number) to Q&A, Macworld, 99 Gray's Inn Road, London WC1X 8UT. You can also send an email, marked Q&A in the subject line, to **qanda@macworld.co.uk**. We pay £25 for each tip published here. We cannot make personal replies, so please do not include a stamped addressed envelope.

Mac OS 9.0.4 bug-fix

TIP Under Mac OS 9.0.4, users running with Limited Finder or Panels access might find that pressing a function key causes the Mac to lock up. Upgrading to Mac OS 9.1 fixes this problem.

Troubled by USB

Q **When I insert a Zip disk into a drive attached to my Belkin powered-four-port hub – which is hooked-up to a G4 Cube – my Mac locks up. Why?**

Dennis Michaels

A The Cube has only two USB ports, which Apple recommends should be used for the Pro Keyboard and speakers. Fortunately, despite Apple's suggestion to the contrary, if you have a USB hub that provides enough juice – and the Belkin device is such a hub – you can plug it into one of the Cube's USB ports and then attach the Apple Pro Keyboard to it, with no ill effects. But, if your hub is underpowered, the keyboard won't work properly in this configuration. And one of the few ways to find out if your hub is underpowered – short of using a voltage meter – is to plug your Cube's keyboard into the hub and see if it fails.

However, this doesn't explain why the Cube locks up upon insertion of a Zip disk. To understand why this happens, you must disregard what you may have heard and accept that USB ain't the trouble-free standard it's cracked up to be. I know, I know – USB has been touted as the heady solution that will end SCSI voodoo forever . . . no longer must you worry about which device is plugged in where . . . USB is plug-&-play done right. . . Well, no.

A chain of USB devices can be just as finicky as a SCSI chain. This finickiness, however, is generally caused by not-quite-right USB drivers – supplied either by Apple or by a maker of USB peripherals. Given this fact, the first step to troubleshooting a problem such as Dennis's is to download and install the latest drivers for each USB device. I'd suggest the Zip drivers in Iomega's IomegaWare package, which can be downloaded from **www.iomega.com/software/featured/iomegawaremac.html**.

Should updated drivers fail to do the trick, try unplugging USB peripherals. It's not uncommon for a Zip drive to freeze a Mac when a USB Zip drive and a printer are both attached to the Mac at start-up. If you find this to be the source of the conflict, you can generally work around it by unplugging one device before booting the Mac and then plugging that device back in once the Mac is up and running. An ugly solution, granted, but until rock-solid USB drivers come to the Mac, we're going to have to put up with this kind of inconvenience.

Music compression quality

TIP If you use iTunes to import music from audio CDs and then burn those tracks to a CD-R, make sure that you import those tracks via iTunes' AIFF encoder.

Unlike iTunes' MP3 encoder, the AIFF encoder doesn't compress the audio tracks when importing files – an action that degrades audio quality.

To select the AIFF encoder, select iTunes Advanced tab and choose AIFF Encoder from the Import Using pop-up menu.

Bear in mind that because the audio files are not compressed when imported with the AIFF encoder, those files will take up a fair amount of space on your hard drive. A 74-minute audio CD typically holds about 640MB.

Andy Ihnatko

In his new Macworld column, Mac veteran Andy Ihnatko looks at Apple pre-iSteve

The Steve sandwich

When Apple CEO Steve Jobs's second coming really got rolling, his importance to Apple and the faith everyone had put in him were infinite. But arming Steve Jobs with a sense of absolute invincibility and loosing him inside a company is like putting a toddler in a white living room with an assortment of jams, jellies, and condiments: the results are simultaneously wonderful, dramatic, and rather terrifying.

"According to the press releases, iMacs sported colours hitherto undreamed of by the puny mind of the Universe... colours forcibly inserted into the visible spectrum by Apple's sheer commitment to excellence."

Which is not to say that Jobs's sense of invincibility was invalid. How about the CEOs who filled the gap between Steve and iSteve. First came John Sculley, probably the best of the Sandwich CEOs. For one, the Newton was his baby, and I can't get over how he managed to produce such a quintessentially Apple product so soon after his first exposure to the nanospores in the Apple campus's ventilation system. Newton was immensely useful, the obvious Next Thing Coming, and a perfect fusion of advanced hardware and software with an understanding of how humans interact with them. Oh, and it cost way too much and was released years before consumers were ready for it. All in all, a perfect outing.

But Sculley was followed by Michael Spindler and Dr Gil Amelio. Spindler was too much of a company man to successfully formulate and implement the larger vision that has always driven Apple. And Amelio was too much of a corporate man, period. After I read his memoir about his tenure at Apple, my respect for Amelio grew (as did my appreciation for the trouble he was in the moment he parked his Lexus in Spindler's old spot). But if Spindler failed to understand Apple as a car that required petrol, oil, and regular replacement of the tree-shaped air freshener dangling off the radio knob, Amelio seemed to see it as a collection of commonly available, interchangeable parts. At times, one wondered if he thought of Apple in terms of its value as scrap metal.

If you're a regular watcher of MTV's *The Real World*, you're probably fascinated by the show for the same reason I am: week after week, I just cannot get over how a group of people with that much talent and potential can manage to waste so much time and opportunity. And that's one of the less positive traits of the Mac community, both institutionally and individually: we need a Steve Jobs to rally us occasionally and to dangle new carrots in front of us – to remind us that God has a wonderful plan for our future and that He wears jeans and a black mock-turtleneck.

While David Pogue wrote this column, I didn't get to write about the excitement of the iMac and those megasuperhyperginchy designs that took the boring box of the Power Mac G3 tower and turned it into a supercomputer that looked like a Hall's Mentho-Lyptus cough drop. I also missed the ongoing passion play of Mac OS X's alpha and beta cycles, and several Macworld Expo keynotes in which iSteve drank bottled water and waved his hands a lot.

Apple invents

I lost out on iSteve's regular revelations of new iMacs that (according to the press releases) sported colours hitherto undreamed of by the puny mind of the Universe, colours forcibly inserted into the visible spectrum by Apple's sheer commitment to excellence. Would that the company only had put the same amount of effort into developing an iMac with more vroom under the hood. And I missed the introduction of the G4 Cube, a spectacular piece of design and engineering that, like the Newton, was too expensive and ultimately not what consumers wanted.

And it seems that I've missed iSteve's first big, giddy misstep. Just after I left, Apple shed its (entirely unwarranted) reputation as a Company On The Brink and brought out the iMac: eminently powerful, wholly affordable, and with a visual appeal like no other consumer product on the market.

Apple has abandoned the more frighteningly unorthodox elements of Mac OS X in favour of a more traditional Mac experience. It's introduced a new PowerBook with style so advanced and appealing, it's the sort of thing a James Bond villain would ironically impale himself on in his lair at the end of the movie. And while the new desktop towers have the forward-looking and highly advanced ability to burn CDs and DVDs, we don't have to pay for that option if we don't want to... and everyone gets a fourth PCI slot.

It appears that Apple has learned how to retain the excitement and vitality of its birthright and combine it with the dull-but-vital sense of duty that keeps a company healthy and profitable. **MW**